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A COMPLETE TREATISE ON Gangrene and Sphacelus; WITH A NEW METHOD OF AMPUTATION.

By Mr. O'HALLORAN, Surgeon.

Hæc, tam firmis fundamentis superstruere nitemur, ut veritates, non quasi in crepusculo micent; sed ceu, in medio constitutæ cœlo, fulgentibus radiis, *totam medicorum rempublicam illustrent.* Hovius.

In tenebris lucens.

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TO HIS EXCELLENCY

FRANCIS Earl of HERTFORD, Viſcount BEAUCHAMP, Lord CONWAY, Baron of RAGLEY, and Baron of KILLULTAGH, of his Majeſty's Moſt Honourable PRIVY COUNCIL, Knight of the Moſt Noble ORDER of the GARTER, Lord Lieutenant General, and General Governor of IRELAND.

May it pleaſe your Excellency,

OF all the reſearches into nature, none are ſo immediately intereſting to mankind as medical ones. For the real neceſſaries of life may be comprized in a few things: ſituations may render what are highly uſeful in one place, eaſily diſpenſed with in another; but accidents and diſorders, being what we are every where expoſed to, their relief becomes an object of univerſal concern.

Amonſt the moſt polite nations of antiquity, medical diſquiſitions were held

held in this light: the prieſts were the diſpenſers of medicines; and the temples the repoſitories of phyſical knowledge. None dared alter the eſtabliſhed practice without proper authority; and altars were raiſed to eminent profeſſors. Solomon, the wiſeſt prince in his days, wrote of plants, from the lofty cedar to the hyſſop that creeps on the wall. Mithridates was not leſs renowned for war and politics, than for medical knowledge. The greateſt among the Ægyptian kings cultivated phyſic, by example, as well as rewards; and Heroes, of the firſt fame, have delegated their names to particular vegetables. In latter times, phyſic has met with particular countenance; and our preſent gracious Sovereign has, with a truly parental care, been minute in his inquiries into the ſtate of his military Hoſpitals, during the late glorious war.

Incited by theſe conſiderations, my Lord,

Lord, I have presumed to publish the present work, under your Excellencies auspices, and to request Your patronage of it. Stranger as I am, my Lord, to Your person, though not to the distinguished qualities which have long rendered You so dear to your country, in a private as well as public character, I have flattered myself, that the Importance of the subject will apologize for the liberty of this Address; and that Your Excellency will graciously accept of the Present, which, through You, I make the Public.

It is, my Lord, an attempt to fix upon permanent and unerring Principles, the methods of treating disorders, in themselves the most melancholy and affecting, and which, by the nature of their service, the military are most exposed to---I mean Mortifications. It is, where no alternative offers between death and recovery, but mutilation, the description of

of a method of performing Amputation, repeatedly and ſucceſsfully practiſed by me, infinitely preferable to that now in uſe; the object of inquiry of many ages, and particularly in the preſent century.

When the author of this Work reflects on the immenſe difficulties which men of the moſt eſtabliſhed characters in the Philoſophical and Medical worlds have met with, in eſtabliſhing their tenets, and the ſlowneſs of their progreſs, he muſt be convinced how fruitleſs any attempt of his, to INNOVATION, muſt be. Remote from the Capital, and not well known in the world of letters, he eaſily foreſees under what diſadvantages, novelties, however well ſupported, muſt appear, flowing from his pen. Thus circumſtanced, 'tis to your Excellency's juſtice, 'tis to your humanity he appeals. If the method of treatment here laid down, the reſult of many years extenſive practice and

pain-

painful obſervations, ſhall appear to be founded on irrefragable Principles: If the new method of Amputation be, 1ſt, More expeditious, and leſs painful in the cure, than that now in uſe: 2dly, If the patient be ever after exempt from theſe painful ſenſations ſubſequent to every other method: 3dly, If in the thigh particularly, where it is moſt wanting, the cure be perfected in half the time now taken, and with infinitely more eaſe to the ſick: If, 4thly, in all theſe caſes, the uſe of the extremity of the ſtump be preſerved to the patient, by the intervention of an artificial limb, will not theſe be motives ſufficient to juſtify it's general uſe in the military hoſpitals of this kingdom? Stronger I am perſuaded it cannot have to make it an object worthy your Excellency's protection.

Deign favourably then, my Lord, to receive this humble tribute of my labors. It is a preſage of that univerſal

verſal applauſe which a generous and grateful people will expreſs for your Excellency's mild and equitable adminiſtration; and forgive the ambitious attempt to ſhelter this work under ſo diſtinguiſhed, ſo illuſtrious a Repreſentative of the Noble Houſe of SEYMOUR.

I have the Honour to ſubſcribe myſelf, with the moſt profound Reſpect,

Your Excellency's moſt devoted,

and moſt obedient

humble Servant,

SILVESTER O'HALLORAN.

Limeric, Oct. 30, 1765.

PREFACE.

BEING naturally of a contemplative disposition, and strongly inclined to excel in a profession of so much use to mankind as Surgery is, I took early care, to inform myself of whatever had been advanced, either new, or curious, on any part of it. To make this pursuit more easy and useful to myself, I had several manuscripts, in which the principal disorders of Surgery were classed; and under each article had contracted whatever had been asserted as new, by different writers. I found such as treated of gangrene, from Galen almost down to the present time, account for its formation thus----Inflammation has four methods of termination. 1. By discution. 2. By abscess. 3. By skirrhus: or, 4. Gangrene. As the cause of gangrene was then supposed to proceed from the highest ex-exceſs of inflammation, and the redundant

blood and juices becoming putrid, for want of proper aſſimilation, no wonder then, that amputation ſhould be deemed the only cure for a local complaint. Thus, by admitting a theory, repugnant to experience, in moſt inſtances, have concluſions been drawn, highly detrimental to the ſick, and to ſurgery! Noting down the remarks, which I drew from time to time, from experience, on this head, I began to ſuſpect, that the theory of gangrenes was not well founded. In fact, I found a great number of mortifications to be attended with very little degree of inflammation: nay, that the only way to avert or impede their direful effects, was, to endeavor to rouze in the blood and juices themſelves, every latent principle of heat and inflammation! Sollicitous to explore the nature of this terrible diſorder, through all its different meanders, I omitted no opportunity, nay, amongſt the poor ſought many, to ſatisfy ſo laudable a curioſity. Reiterated experiences have convinced me, that the ſource of moſt gangrenes, is really and materially in the blood and juices themſelves: of conſequence, that what ſeems to be the real malady, is a ſymptom only, of that univerſal depravity, with which the whole maſs is replete. Succeeding obſervations enlarged my ideas on this head, and have enabled

enabled me, I think, with great preciſion, to diſtinguiſh the different ſpecies of gangrene.

That, from an univerſal chachexy, being the ſource of all the reſt, demanded the firſt place, and particular attention. The proving, to conviction, this ſpecies of gangrene, and its different ſtages, is undoubtedly a conſiderable acquiſition to ſurgery: it will evince, that the views of a good ſurgeon muſt be much more expanded, than what has been ſuppoſed; and that the moſt expert operator, may not be always the beſt ſurgeon. By it, it will appear, that, to do juſtice to the ſick, and to ourſelves, we muſt, in many caſes, rather avoid, than perform capital operations. In the firſt volume of the Edinburgh Eſſays, are ſome interrogatories propoſed, relative to the point in queſtion, which, to this time, have remained unanſwered.

That an hot and bilious habit of body diſpoſes parts to gangrene, after violent hurts, where proper and ſeaſonable evacuations have been omitted, cannot be doubted: of this the preſent work affords ſome inſtances; but the reader will obſerve, that even *here*, I am very reſerved, in recommending amputation, till ſuch time as the parts become abſolutely ſphacelous, and a ſenſible ſeparation of the

livid from the ſound parts appears, leaſt any remains of this diſorder be lodged in the blood. My reaſons are ſtrong, and ſhould not be tranſiently ſlurred over.

The firſt inſtance of a cancerous gangrene I met with, and, I think, the only one yet deſcribed, I own, made me a little vain. I attributed his ſpeedy and laſting cure, to the pains I firſt took, in removing the cauſe from the maſs of blood: without ſuch caution, I concluded his recovery impoſſible. And yet, to prove how fallacious human reaſoning is, when oppoſed to experience, and how open we ſhould ever be to conviction, behold ſubſequent caſes, of the ſame claſs, where the ſymptoms were ſo aggravated and preſſing, as to make the neceſſary delays of preparing the blood, highly dangerous to the ſick, and yet they have alſo been completely cured! Can any thing more ſtrongly prove the futility of attempting to draw general concluſions, from particular experiments? Can more conciſe or cogent reaſons, be oppoſed to general ſyſtems, either of phyſic, or philoſophy?

That ſpecies of gangrene ſubſequent to phlebotomy, though it muſt appear new, yet, it ſeems, is much more common than has been ſuppoſed. The firſt inſtance I met, made me pay more attention to Dionis's remark on this head: I wiſhed for further

further opportunities to inveſtigate the nature of this malady; and my curioſity was effectually ſatisfied, in the next caſe. Tho' I am not without my doubts, but that the cauſe of this diſorder, may be reſolved into the univerſal gangrene; yet, as I found it to ariſe immediately from phlebotomy, I thought it merited a particular chapter; ſince it will prove, that the accidents attendant on bleeding, are more, and greater, than has been ſuppoſed. Since the cloſing that chapter, I have met with another inſtance of the fatal effects of bad bleeding, in the caſe of one Ryan, a country-man, who died the fourth day, from this cauſe.

The chapter on diſeaſes of the ſolids, will, I hope, alſo appear to have ſome merit. That limbs have been too often condemned in theſe complaints, thro' the impatience of the ſurgeon, or patient, or both, which might have been ſaved, is a fact that cannot be doubted: to attempt diſtinguiſhing the curable, from the irremediable diſorders of this claſs, muſt certainly be highly uſeful; even the outlines of ſuch a deſign are laudable.

Though gangrene from intenſe cold and froſt, is a complaint that ſeldom occurs here; yet, in a maritime country, it deſerves particular attention. Winter campaigns, and long voyages, expoſe both the ſoldier and ſailor to ſuch attacks; and, as

it

it demands a peculiar kind of treatment, the expoſition of it becomes the more neceſſary. The method of cure here pointed out, is founded on reaſon, ſupported by philoſophical experiments, and confirmed by the obſervations of gentlemen long verſed in theſe diſorders.

The method of cure, where the principal arteries are wounded, appears to me extremely rational; and, I think, highly warrantable. The taking up the blood-veſſel, removes our preſent apprehenſions; and the greateſt neceſſity only, ſhould countenance the taking off a limb. This chapter appears to me very intereſting, and to demand a particular attention.

We obſerve, that nature performs her operations in the moſt ſimple manner, and, left to herſelf, will do wonders. The rules preſcribed by art, to reduce gun-ſhot wounds to ſimple ones, I have often imagined, were too round about: that a method leſs painful and dangerous might ſucceed; and that ſoft, relaxing, anodyne applications, and warm ſtuping, might anſwer the terrifying proceſs of profound inciſions, to ſubjects, from the nature of the accident already too ſtrongly impreſt with terror. For the ſame reaſon, I have endeavored to mollify the too great attention to extracting foreign bodies, from wounds of this claſs, by (I apprehend) proving

proving that nature, with little fatigue or danger, will, in a few days, ſave us a great deal of trouble, and herſelf ſome pain, in this proceſs. In a word, the treatment I have propoſed for gun-ſhot wounds, in general, is both a new and ſafe practice. It cannot be ſuppoſed, from my ſituation, that I ſhould be enabled to illuſtrate this practice, by a variety of caſes; and yet all the proofs neceſſary, to a mind open to conviction, I think, are here advanced. I judged ſome ſtrictures on the manner of treating gun-ſhot wounds, both uſeful and neceſſary; more eſpecially as it appears, that cruel operations, in theſe unhappy accidents, are ſtill but too often practiſed: I draw this inference from the peruſal of M. Belguer's diſſertation, as well as other modern eſſays.

As to amputation itſelf, that its indiſcriminate uſe, or, indeed, rather abuſe, has been of infinitely greater detriment to mankind, than ſervice, I think, muſt be admitted. We daily hear of ſudden accidents, that require amputation; and nothing is more common, than to be informed, that the patient died in two or three hours after the operation. In ſea engagements, where a limb is torn and ſhattered, this very ſoon follows mutilation; and after battles, the recoveries bare no proportion to the deaths, on this account.

count. It was this great propenſity to lopping off limbs, that cauſed a complaint to be exhibited to Louis the XIVth, that his ſurgeons eſtimated the importance of their ſervice in a campaign, from the number of mutilations only; and they were obliged to defend themſelves from this aſperſion before a prince, who wiſely rated the lives of his people too high, to ſuffer characters to be gained at their expence. In fact, it is not enough for a ſurgeon to know *How* to operate, he muſt alſo know *When* to do it. Now we propoſe no operation, nor can we ſuppoſe a patient would ſubmit to any, without expecting relief by it. But if thouſands of inſtances prove, that in all ſudden accidents, which make the loſs of a limb abſolutely unavoidable, that ſpeedy amputation is moſtly followed by death, ſhould it not, in ſucceeding exigencies, deter us from ſuch practice? It is true, in deplorable caſes of this kind, few have the courage to oppoſe the general torrent. The practice has the ſanction of antiquity, ſupported by modern ſuffrages. If this eſſential point is not directly complied with, and the patient dies, the ſurgeon ſuffers the reproaches of the friends, and of the public, as ignorant in his profeſſion; whereas, if amputation is performed, all is right, whether the ſick lives, or dies.

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The clearing up this ſingle point alone, is unqueſtionably of the greateſt ſervice to mankind, particularly to the military. By demonſtrating *when* this operation ought to be done, we may, to a degree of certainty, aſſure ourſelves of the patient's recovery. It is true, this operation will be, by this means, more rare, but then it will be more ſucceſsful: the general eſtimation of recoveries, to deaths, in this ſingle article, is as thirty to an hundred; but, by the principles here laid down, we boldly affirm, becauſe juſtly, that in an hundred amputations, *ninety-five ſhall recover!* An acquiſition of knowledge, highly honorable to ſurgery, and acceptable to humanity! Without a complete diſcuſſion of this affair, the New Operation would not appear with all the advantages to the public, which it now muſt.

To abridge the cure, after amputation, has in all ages employed the particular attention of ſurgeons. To anſwer this end, Celſus recommended a portion of ſkin to be preſerved, to cover the bare bones: Paree adviſed the croſs ſuture of the ſurrounding ſkin; Verduin and Lowdham, *&c.* propoſed the flap operation; Mr. Cheſeldon invented the double inciſion of the integuments; Mr. Sharp revives the croſs ſuture, of the ſkin, ſo often before him applauded and cenſured; and, in fine,

that Mr. Louis advances, that removing the fillet before ſawing the bone, to give the muſcles, particularly in the thigh, time to retract, will greatly ſhorten the cure. However, nothing is more certain, than that this great end, ſo long and eagerly ſought for, has not been gained by theſe different means propoſed ---- To publiſh then, a method of performing amputation, as expeditious as the preſent mode, and attended with no more pain to the patient; in which every advantage, ſo long wiſhed for, is acquired, muſt aſſuredly be a preſent much wanted, and highly acceptable to the public ---- May I ſay to mankind: Such, undoubtedly, is *Our Method of Amputation.*

But, beſides its ſuperior advantages in the leg, to the common one, too much cannot be ſaid in its praiſe, where the thigh is the object; eſpecially if contraſted to the pain and miſery concomitant and ſubſequent to the uſual method. Beſides a tedious and painful cure of many months, the patient is ever after ſubject to theſe diſagreeable ſenſations, eſpecially in cold weather, attendant on a bare projecting bone; whereas, by our method, the cure is completed in as many weeks, as the other requires months, and all ſubſequent pains avoided!

But,

But, beſides the utilities of this practice, conſidered as an operation only, the very principles on which it is founded, throws ſome further lights on ſurgery, and on the healing art. Inflammation and fever, thoſe bug-bears to ſurgery, and the natural conſequences of every great derangement of the animal oeconomy, ſo far from being deemed alarming, will be looked upon as good ſigns: their exceſs, or abſence only, muſt be judged dangerous: Evacuations will leſſen the firſt; whilſt cordials, and generous diet, will promote the latter intention. The advantages of our operation extend ſtill further: they point out the preciſe time, in which the union of divided parts ſhould be attempted. They prove the futility of trying to unite freſh inciſed wounds: this ſhould be done, when ſuppuration becomes eſtabliſhed, and not before. On further conſideration, the proſpect appears ſtill brighter; for though modern writers have minutely deſcribed the manner of diſſecting cancered breaſts, and preſerving a large portion of ſkin, to expedite the cure, yet are they ſilent on the means of conducting the ſore, to this deſirable end: ſo far from it, that it is demonſtrable, they have not even conceived a diſtant idea of it. For M. Faget * acknowledges,

* Mem. de l'Academ. de Chirurgie, T. 1. P. 3.

knowledges, that in ſix weeks, from an operation of this kind, the ſore was not healed; whereas, on our principles, nothing is more certain, than that it muſt be ſkinned, at a much earlier period. Thus we ſee, what extenſive inductions may be drawn from ſound principles!

The propoſal for advancing ſurgery in Ireland, muſt certainly be acceptable to the profeſſion: happy for the nation, and the healing art, if the force of arguments advanced in its favor, be properly felt and attended to, by thoſe who have the power and the means of putting this moſt uſeful and noble profeſſion, on a more reſpectable footing. In the moſt early periods of our hiſtory, it appears, that the health of the ſubject, was a particular object of attention in the ſtate; and were no other monuments of our antiquity left, yet would this alone, in every civilized nation, ſecure us the character of a poliſhed people. As to the work itſelf, after mature deliberation, I have thrown it into the form in which it now appears. By dividing it into chapters, they ſerve as reſting places to the reader: the title of each, may induce him to examine it, with ſome attention; whereas, the whole, thrown into one, might diſguſt, or tire. The caſes illuſtrating each head, are wrote with a ſcrupulous regard

to

to truth. I have aimed at perſpicuity and conciſeneſs in the ſtile. Books of ſurgery, at beſt, can have little entertaining: the many diſorders incident to humanity; and the cruel, though neceſſary, means of relieving them, muſt afford, to a contemplative mind, but melancholy ideas; long-winded periods, and ill connected ſentences, ſhould be therefore avoided. The divine, and philoſopher, being thus inſenſibly brought in, to ſtudy the corporal, as well as mental, defects, will find new and efficacious themes of moralizing, and the public new leſſons of morality.

I have, through the courſe of this great and arduous undertaking, carefully avoided giving forms of medicines, ſatisfied to point out the capital remedies only, leaving the manner of preſcribing, to the judgement of the judicious ſurgeon. The ſame reaſons that ſtimulated me, to propoſe a ſcheme for the advancement of our ſurgery, have had their weight here alſo. Theſe formulæ too often encourage empirics, and ignorant people, to practice, and, by miſtaking the indications, to do more harm than good. To make this work thoroughly to anſwer the title given, I have added an Introduction, containing a ſketch of the different ſentiments of writers, in all ages, on this malady: by this means, without much trouble, the reader

reader will ſee the many and different attempts made to render this operation more ſimple, and the cure more expeditious. Beſides, it is an act of public juſtice, to tranſmit to poſterity the names of thoſe, who have endeavoured to be uſeful to mankind, in their generations, even though the ſucceſs ſhould fall ſhort of the expectations. In a word, reader, I flatter myſelf, that this work will not only appear uſeful to ſurgery in general, but that men of extenſive practice will find in it, profitable inſtructions to direct them in their private practice. As for thoſe gentlemen, in whom the large vacuities from ſcience are replete with ſelf-ſufficiency, it would be too great an indulgence to expect their peruſal of this work, however new or curious. If they will even condeſcend to glance tranſiently over this preface, before they pronounce judgement on the whole, I ſhall deem it as a ſingular favor; and, in return, ſhall preſent to them the following ſaying of Seneca's, with which I cloſe this diſcourſe.

Puto multos ad ſapientiam potuiſſe pervenire, niſi putaſſent ſe perveniſſe.

LIMERIC, *Jan.* 18,
1765.

O H.

INTRODUCTION.

OF all the diſorders, to which human nature is incident, none is ſo truly alarming as gangrene; nor can any reſource be more cruel, than what is generally deemed its cure; namely, amputation. The firſt riſe of this operation, cannot, with any certainty, be traced. To affirm, that its invention was the reſult of ſtudy and anatomy, would be ſaying too much; becauſe it has been deſcribed at a time, when ſurgery was as yet rude, and anatomy little cultivated. We rather think, that ſpontaneous ſeparations of limbs, at the articulation, in mortifications, gave the firſt hint to ſurgeons, to attempt an artificial one; and this conjecture ſeems to acquire ſome degree of certainty, when it is known, that many of the ancients recommended the exciſion of a limb, to be performed at its articulation.

Though

Though Hippocrates treats of gangrene and ſphacelus, and even recommends, in mortifications, to cut away the rotten parts, and leaves us that famous aphoriſm, ſo often re-echoed by ſurgeons: "Illi "affectus, qui medicamentis non ſanan- "tur, ferro ſanantur: qui ferro non "ſanantur, igne ſanantur; qui igne non "curantur, hos exiſtimare oportet inſa- "nabiles:" yet he no where deſcribes, or even hints at cutting off a limb. The earlieſt writer we can find, who treats expreſſly of amputation, is Celſus, who flouriſhed in the time of the emperor Tiberius; and though he deſcribes it pretty minutely, and even gives particular directions, to preſerve a portion of ſkin, in order to cover the bone, yet he no where hints at its being a new operation. (1) Nay, from this very circumſtance, there is room to think, that this operation, and the very defects of it, were well known, long before this writer's time; elſe, why ſo preciſe, in this eſſential point, of guarding againſt a bare bone? It is true, he makes no proviſion for, or guards againſt an hæmorrhagy, during the operation; nor does he mention any methods to maſter it afterwards:

(1) Lib. 7. Cap. 33.

wards: on the contrary, he acknowledges, that many have died in the operation, from this cauſe. From the whole of Celſus's account of this operation, I am inclined to think, that it had been in practice long before his time; and that the defects of a projecting bone, were ſenſibly felt by the very old ſurgeons, as he is ſo minute in this point. But then, if ſo, it may be obſerved, why ſo ſilent in other parts of this operation, ſo eſſentially neceſſary to the exiſtence of the patient? Were it a writer of leſs antiquity and character, who left ſo mutilated an account of this operation, I ſhould be inclined to think, that he took this account from tradition, or from ſome eminent ſurgeon then in being; and not being ſufficiently and experimentally acquainted with the ſubject, might tranſmit it to us, as he has, in ſome parts extremely clear, in others, very defective; but on ſo reſpectable and eminent a writer, I durſt paſs no cenſure.

Galen, who lived a century later than Celſus, makes no mention of amputation, though he writes expreſly of gangrene and ſphacelus. (2) He only recommends, af-

(2) Lib. 2 ad Glauc. &c.

ter Hippocrates, the putrid parts to be cut away. What is more extraordinary, he never once mentions the name of Celſus, who acquired a very great character in his time.

Paulus, of Ægina, whom Dr. Friend places in the ſeventh century, is the next after Celſus, who treats of amputation. (3) He relates the manner, in which Leonidas performed it. That he cut the ſoft parts, in the ſound fleſh, I think, is clear, though he does not preciſely mention it; becauſe he directs a cloath to draw up the fleſh, whilſt the bone is dividing, for fear of the ſaws hurting the fleſh. To ſtop a bleeding after the operation, he makes uſe of a red iron, to ſear the parts.

Avicenna, who lived in the 12th century, to avoid pain and bleeding, directs the fleſh to be cut, in the mortified parts; and, after the amputation, to apply red irons to the ſtump, to conſume the putrid fleſh and bone, until the patient complained of heat and pain (4).

Giudo de Chauliaco cut the ſoft parts, between two ligatures; and, after the example of Paulus, recommends a ſtrip of

(3) Lib. 6. Cap. 84. (4) Tom. 2. Lib. 4.

of linen, to draw up the ſoft parts, whilſt the bone is ſawing. The bleeding veſſels he ſtopt by the actual cautery, or boiling oil. John de Vigo, ſurgeon to pope Julius the ſecond, who wrote in the dawn of the 16th century, recommends a limb to be taken off in the mortified part; and to ſear the veſſels with red iron (5). Veſalius, who wrote about the middle of that century, deſcribes amputation in a new manner. He directs the fleſh to be cut with a red-hot knife, in the gangrened parts; and, after ſawing the bone, makes uſe of the actual cautery, to conſume the putrid fleſh, as well as to promote a ſpeedy exfoliation of the bone (6).

Bartholæmeus Maggius, cotemporary with Veſalius, cut in the rotten parts, which he afterwards ſeparated from the ſound; and, after the operation, applied to the ſtump the actual cautery, or dipped it in boiling oil, mixed with ſulphur, till it penetrated to the quick (7).

Botallus, who was phyſician to Charles the IXth of France, after deſcribing this operation, after Maggius, obſerved alſo, that it was very tedious. He propoſed a ſhorter, and, as he affirmed, a leſs pain-

(5) Lib. 4. Cap. 7. (6) Chir. Mag. Lib. 5. Cap. 12.
(7) De Vulneribus.

ful one (8). It consisted of two long, and very sharp knives, the under one immoveable, and fix'd to a piece of wood; the other, placed in a frame, and moveable, by means of a groove, in a machine, to which was fixed a large piece of lead. To take off a limb, with this machine, it rested on the edge of the lower knife, and the moveable one, let suddenly fall on it, the limb was lopped off in the instant. The hint of this machine he very probably took from the Scots manner of decollating state criminals; but he was severely censured by succeeding writers.

Ambrose Paree, first surgeon to three successive kings of France, and cotemporary with Botallus, was the man, who first put the operation of amputation on any tolerable footing. Before him, tho' often described, yet was it rarely performed: and we are told, so much did the dread of hæmorrhagy deter surgeons from attempting this operation, that Albucasis positively refused taking off a man's arm, for this very reason. He inveighs strongly against the use of the actual cautery, as being both a cruel, and an uncertain relief; and at the same time prolonging the time of cure,

(8) Van Horne Microtechne.

cure, by making an exfoliation of the bone neceſſary. (9) He is the firſt who orders the ſoft parts to be cut with a crooked knife; and, in amputations of the leg, the interoſſeous ligament to be divided, before the bone is ſawed. Inſtead of the cautery, he directs the arteries to be ſecured by ligature; and, notwithſtanding the inſinuations of ſome moderns, that he took this hint from the antients, becauſe they mention the ſtitching of large wounds; yet it appears to me demonſtrable, that he ſtands ſingle, in this great and uſeful diſcovery. What hint could the recommending the uniting the lips of a wound, by ligature, furniſh, towards tying large arteries, after the intire exciſion of a limb? I think, none; but, ſuppoſing it could, how came it to eſcape the notice of ſo many centuries? After ſtaunching the blood, he directs the ſkin, ſurrounding the ſtump, to be drawn together, by a crucial ligature, in order to prevent a projecting bone. No wonder, if ſo many curious improvements on this operation, raiſed the indignation of his cotemporaries. To ſee a ſurgeon improve his profeſſion, was nothing; but to pretend,

(9) Livre 12. Chap. 30.

pretend, at the ſame time, to be able to deſcribe theſe improvements himſelf, was what the faculty could not forgive. The phyſicians, from time immemorial, pretended to be directors in ſurgery, as well as practitioners in phyſick. It was *convenient* for them, that ſurgeons ſhould underſtand their profeſſion, but then it was their intereſt, that the public ſhould not think ſo. Treatiſes of ſurgery, were generally written by phyſicians; and may, perhaps, in ſome meaſure, account for their being, in ſo many eſſential points, extremely defective. Here was a ſurgeon, who wrote on what he underſtood: no wonder then, that it was ſo clear; and that this bold writer was ſo ill treated. It was publickly aſſerted, that he was illiterate and ignorant: that he employed phyſicians, underhand, to write his treatiſe, and many eminent ſurgeons to aſſiſt him. But his fame has out-lived malice, and the name of a Gourmelin, who was the echoe of theſe ſlanders, is thought of with indignation.

Pigray, who wrote after Paree, deſcribes the operation in the ſame manner; but where he could not take hold of the artery with the forceps, he thinks the actual

tual cautery ſhould be uſed. Guillemeau, who was a pupil of the great Paree's, follows his maſter, in his manner of amputating. But as the patrons of fire, were at this time very powerful, he attempts a medium to pleaſe both parties. He ſays, in all ſudden accidents, the ligature is beſt; but, in tedious caſes, where there is any ſuſpicion of the gangrene's remaining, he there recommends the cautery (10).

Fabricius ab Aquependente, profeſſor of anatomy to the univerſity of Padua, wrote in the beginning of the 17th century. In treating of gangrene, he directs the ſoft parts to be cut an inch within the mortification; and this he deems ſo curious an improvement, as to affirm, that he advanced it, before he ſaw De Vigo's book. And, to make his claim ſtronger, he directs the application of the cautery, till the patient felt pain; which was an improvement, he ſays, unthought of before him (11).

Severinus deſcribes amputation much in the manner of Paree, but takes no notice of the ligature of the veſſels. He thinks, however, that the outſide ſkin and fleſh, ſhould be brought over the bone, as much

(10) Chirurg. p. 500. (11) Chirurg. cap. 96.

much as poſſible, by means of the croſs ſtitch (12).

Woodall, an ancient Engliſh ſurgeon, inſtead of a ligature to reſtrain the blood in the operation, had the artery cloſely compreſt, by a ſtrong hand, and relaxed from time to time, to find out the blood veſſels. (13) To maſter the blood, he uſed the actual, or potential cautery. This method was called, amputating by the gripe; and we find it in uſe in ſerjant Wiſeman's time.

Hildanus (14), after a tight ligature of the integuments, to ſtop the blood, had the limb bound down to a bench. He then cut the ſoft parts, with a knife, or razor. Theſe were drawn back, by means of a leathern purſe, that cloſed with running ſtrings. The perioſteum was then divided, and the bone ſawed through. After removing the purſe and fillet, the ſtump was ſeared with red hot iron. We find, that he alſo recommends the fleſh to be cut with a hot knife, which, at once, anſwered the double end, of inciſion, and ſecuring the arteries.

Much about this time it was, that Morell, ſurgeon of la Charite, invented the

(12) Chirurg cap. 9. (13) Woodall's Surgery, fol.
(14) De Gangræna & Sphac. cap. 19, &c.

the tourniquet, for maſtering the blood, during the operation. Before this time, a flat tape, drawn very tight, above the part to be taken off, or the gripe of a ſtrong man, were all the precautions uſed. He firſt applied thick compreſſes over the courſe of the large veſſels, and over theſe a flat, ſtrong tape; by the cloſe twiſting of a ſmall ſtick, this compreſſed the whole limb, but principally the blood veſſels. Some time after, Patin, another French ſurgeon, invented a particular forceps, to catch the artery in, which, to this day, goes by the name of Valet a Patin. After tying the artery with a firm nooſe, he pierced it with a needle and thread, below this nooſe, to prevent its ſlipping off too ſoon.

Wiſeman, (15) ſerjant ſurgeon to Charles the IId of England, deſcribes this operation minutely. He firſt draws back the fleſh and ſkin, then applies the tourniquet; and as he divides the ſoft parts, an aſſiſtant draws them up (an excellent method!) He rejects the ſplit cloth, as uſeleſs, in ſawing the bone; and ſeems to prefer the actual, or potential cautery, to the ligature, and approves much of a cru-

d cial

(15) Wiſeman's Surgery, Vol.

cial ligature of the integuments, to haſten a cure.

Nuck deſcribes the operation in the manner of Paree: is the firſt who mentions Morell's tourniquét: prefers the cautery, to a ligature of the veſſels; and, in many caſes, thinks the lycoperdon, or crepitus lupi, may be ſafely ſubſtituted to either.

About this period, Rabel, a German chymiſt, invented a mixture, which he vaunted as a great ſecret, to ſtop all bleedings, and which the French yet, after him, call Eau de Rabel. It was a compoſition of ſtrong ſpirits of vitriol, and ſpirits of wine. By the bare application of this, he affirmed, in every ſpecies of bleeding, that the ligature, or cautery, would become uſeleſs. He applied to Louis the XIVth, the then patronizer of arts and ſciences in Europe. He generouſly rewarded him for his ſecret; but, by the report of Dionis, its ſucceſs was very inadequate to the public expectations: for a ſoldier of the invalids, whoſe thigh was taken off, died of the hæmorrhagy, in his hands. Nevertheleſs, it may be confidently affirmed, from its very compoſition, to be an excellent ſtyptic (16).

La

(16) Cours de operations, &c. par Dionis.

La Charrier treats of the cauſes of gangrene, and deſcribes amputation with preciſion. He orders a piece of paſte-board, under the gripe-ſtick, for fear of wrinkling, or hurting, the ſkin, and adviſes the fibula to be ſawn through, before the tibia, for fear of ſplintering this bone. He thinks the retraction of the ſoft parts, by a ſplit cloth, very neceſſary, to prevent a projecting bone; and prefers the ligature of the veſſels to the cautery. He thinks the crucial ſtitch of the integuments very proper, in the arm, or thigh, to prevent a projecting bone; but condemns it in the leg, or fore arm (17).

Solingen, in a Dutch treatiſe of ſurgery, imagines, in taking off a leg, the lower down the diviſion is made, the better; and he contrived a machine, in which the ſtump was to reſt, which, by means of ſprings, anſwered the purpoſes of the mutilated parts. But though this improvement is mentioned by Dionis, and Heiſter, yet I find him not followed by others, in it (18).

Dionis, a bold and able ſurgeon, deſcribes this operation minutely. He directs aſtringent powders, mixed with

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(17) Nouvelles operations de Chirurgie, Chap. 35 and 36.
(18) Vide Heiſter, Dionis, *&c.*

glare of eggs, to dreſs the ſtump with. He mentions three kinds of ligature for the veſſels --- By a ligature ſlipped over the Valet a Patin --- or when the artery cannot be taken hold of, by two convex needles, armed with the ſame thread, to ſurround the veſſel and circumjacent fleſh with; or the ſame may be done by one large convex needle, well threaded, which, as his ingenuous commentator, M. La Faye, obſerves, is the preſent practice (19).

But the greater the experience of ſurgeons, in amputation, the more ſenſible they became of the many imperfections this operation labored under. The projecting bone, receiving no advantage by the croſs ſtitch of the integuments, made Mr. Lowdham, an enterprizing Engliſh ſurgeon, propoſe a method, before unheard of, and which ſeemed very feaſable (20). This conſiſted, in preſerving a flap of fleſh, in the poſterior part of the leg, of a conſiderable length, below the part to be taken off, which, covering the ſtump, promiſed to make the article of healing extremely expeditious. Upon trial, we find, however, this operation attended with no degree of ſucceſs. This diſappointment

(19) Cours des operations de Chirurgie.
(20) Currus Triumphalis ex Terebinth.

pointment did not deter M. Verduin, an eminent ſurgeon of Amſterdam, in ſome years after, from reviving this method, and illuſtrating it, in his Diſſertation on this ſubject, by a variety of figures of machines and bands, by him deemed neceſſary to the ſucceſs of this method (21); but though Ruyſch and Manget, *&c.* have been loud in their praiſes of it, yet I find it condemned by Junkers, Heiſter, Baron Van Swieten, Mr. Sharp, Mr. Louis, *&c.* Some time after Mr. Heiſter informs us, that his friend Koenerdingius, propoſed ſome further improvements on this operation, in a Dutch Treatiſe, on Gangrene and Sphacelus, but does not mention what they were. (22) Subſequent to theſe, M. Sabourin, a ſurgeon of Geneva (who affirmed, he had ſucceſsfully performed his method at home) propoſed to the Paris Academy, to take off limbs, even at the articulation, and, by preſerving a flap of fleſh, to make a ſpeedy cure. By the interpoſition of this learned body, he was permitted to perform his method at the Hoſpital of la Charite, and Meſſrs du Verney and Mery, were appointed to ſuperintend this operation, and report its ſucceſs,

(21) Diſſert. de Novâ Artuum decurrandatione.
(22) Tract. Chir. cap. 35.

ſucceſs, with their opinions of it. The man died of the hæmorrhagy; and though theſe gentlemen were reſerved enough in their reports, yet it is an incontroverted fact, that this method was never after attempted in France, or elſewhere (23).

La Motte, a ſurgeon of Valognes, in Normandy, and a moſt diligent obſerver, is the firſt, I find, who treats of, and explains, the nature of gangrene, with ſatisfaction. Before him, the cuſtom was, wherever a mortification appeared, to attack it with ſword and fire, agreeable to the axiom of Hippocrates. He, from his own experience, ſhews the ill ſucceſs attending this practice. In lieu of which, he propoſes fortifying nature, with antiſceptics, and ſtrong cordials, in gangrenes, from internal cauſes, and to the ſore applying ſtyrax, mel ægyptiacum, and warming ſpirituous dreſſings, to aſſiſt nature in diſcharging this deliterious load. His method of amputation, I find, was according to the model then in vogue, at the Hotel Dieu of Paris. The artery was cloſed with a button of vitriol, and the dreſſings covered with reſtringent powders (24).

Morell's

(23) Mem. de Acad. des Sciences, 1702.
(24) Traite Complete de Chirurgie, Tom. 3.

Morell's tourniquet, tho' particularly intended to command the large arteries, yet, by its too great compreſſion of the whole limb, was much complained of. An Hungarian ſurgeon invented one, ſo contrived, as to preſs upon the large veſſels only. This machine was much improved by ſurgeon Petit, who, in 1718, preſented it to the Academy of Sciences. In 1731, we find a paper of his, on hæmorrhagies, and the different means of maſtering them; in which he cenſures the application of ſharp cauſtic topics, as no way anſwering the end propoſed; and affirms, that this end is effected, by means of a plug filling up the extremity of the artery. Doctor Petit, ſoon after, gave in a paper, on this ſame ſubject, in which he advances, that ſharp applications beſt anſwer the end of ſtopping blood. In this Memoir is alſo contained, a Chronological Hiſtory of the riſe and progreſs of amputation, to his time, replete with uſeful remarks: how far this has been aſſiſtant to me, in the preceding account, the reader may ſoon ſee, by comparing this, with that learned gentleman's paper.

In the Medical Eſſays of Edinburgh, we find, amongſt many valuable papers of profeſſor

profeſſor Monroe, one chiefly calculated, to point out the defects attendant on the operation of amputation. They are many, and curious; and we ſhall juſt point out the principal. (25) 1. He recommends a roller, to cover the veſſels, inſtead of a ſoft compreſs, and to be ſewed to the circular, for fear of its ſlipping from the exact courſe of the artery. 2. The bone ſhould never project from the fleſh and ſkin. The perioſteum ſhould be cut, as near to the fleſh as poſſible, and puſhed up, by the knife, that the ſaw may act as near as poſſible to the ſound fleſh. 3. The artery ſhould have but a ſmall quantity of muſcular fleſh ſurrounding it; and the ſurgeon ſhould advance his needle higher up, than the orifice of the veſſel, in making the ligature, leſt the artery might eſcape this nooſe. His remarks on bandage, and dreſſing, are very inſtructing; and every defect he points out, attendant on the common bandaging, only ſerves to illuſtrate ſtronger, the great utilities of our method of dreſſing.

Mr. Cheſeldon obſerving, that neither the croſs ſuture of the ſkin, recommended by Paree, nor the flap operation, in any manner anſwered the ends expected from them,

(25) Medical Eſſays, Vol. 4. Art. 22d.

them, imagined another method, to avoid a projecting bone, and a tedious cure, after amputations. This conſiſted in two different inciſions: in the firſt, the ſkin and corpus adipoſum only were divided; the divided parts were then to be drawn up, and the inciſion of the fleſh was to be made cloſe to them. By this means, from one to two inches of ſkin were preſerved, to lap over the ſtump (26).

Garengoet is extremely detailed in this, as, indeed, he is in every other operation of ſurgery. In taking off the leg, it does not appear, that he divides the ſoft parts at twice, as Mr. Cheſeldon recommends, though, in taking off a thigh, he recommends this practice. He thinks the ſplit cloth, to retract the fleſh, may be diſpenced with; and, inſtead of reſtringent powders, approves only of ſoft, unformed lint, to dreſs the ſtump with: he gives ſome uſeful hints about hæmorrhagies: relates Verduin's method of taking off the leg; and laments, that it is not oftener practiſed in hoſpitals (27).

Heiſter firſt cut the ſkin and corpus adipoſum, with a ſcalpel, then drawing up the inciſed parts, cut through the

e muſcles,

(26) Cheſeldon's Anatomy, Sharp's Critical Enquiry.
(27) Operations de Chirurgie, Tom. 3.

muſcles, with an amputating knife, and is particular in his directions for ſawing the bone. He directs a ſplit cloth, to draw up the fleſh, whilſt the ſaw is at work, and takes up the veſſels by the ligature, or ſtaunches the blood with buttons of vitriol; but where the artery cannot be come at, he recommends the actual cautery (28).

M. Le Dran has nothing particular from the uſual method of taking off limbs, in his courſe of operations: he, however, deſcribes two different operations for taking off a thigh, with a flap, the one propoſed by M. Vermale, ſurgeon to the Elector Palatine, the other, by M. Ravaton, ſurgeon to the hoſpital of Landau; each of which conſiſted in preſerving two flaps of fleſh, which, after taking off the bone, united, exactly covered the ſtump. He is the firſt, who deſcribes a method of taking off an arm, at its articulation, with the ſcapula, which operation, we find, his father ſucceſsfully performed (29).

Mr. Sharp, a pupil worthy Mr. Cheſeldon, ſtrongly contends for the delaying amputation, till a ſenſible ſeparation of the morbid from the ſound parts appears;

(28) Tractat. Chirurg.
(29) Operations de Chirurgie.

pears; and ſhews the advantage of the double inciſion, firſt propoſed by his maſter. In a ſubſequent work, he is more detailed in the caſe of amputations. He talks of a dry gangrene, that occaſioned by intenſe cold, and a ſpecies attendant on old age. He doubts of the efficacy of the bark, in ſtopping mortifications; mentions the flap operation, and juſtly doubts the ſucceſſes of it. In order to make a ſpeedy cure, he ſtrongly recommends the croſs future of the ſkin, ſo often, before him, canvaſſed by writers (30).

(31) Baron Van Swieten, in his Commentaries on his maſter Boerhave, deſcribes a leathern ſtrap, to ſurround the limb, above the part to be taken off. In this are two loops, through which two bands paſs, which are to be drawn tight, by an aſſiſtant, previous to the operation, and whilſt the bone is ſawing, to prevent, as much as poſſible, a projecting bone; and does not approve of the crucial ligature of the ſkin, after the operation.

In the Memoirs of the Royal Academy of Surgery, which do ſo much honor to humanity, and to France, we find many illuſtrious members, of this body, deeply

(30) Surgery, Critical Enquiry, &c.
(31) Commenter. Vol. 4.

engaged in the ſubject of amputation. Firſt, M. Morand, deſcribes the virtues of the agaric, in ſtopping blood, and for which its diſcoverer, M. Broſſard, a ſurgeon of la Charite, in Berry, was royally rewarded by the king. M. La Faye, propoſes ſome improvements on the manner of extirpating the humerus, which he thinks preferable to the common one, for theſe reaſons. 1. The ligature of the veſſels is not made, till the arm is ready to be ſeparated. 2. The flap being preſerved in the upper part of the ſore, makes ſuppuration eaſier. 3. The thickneſs of the flap, and its number of veſſels, will make a re-union more ſpeedy.

Next follows the hiſtory of the flap operation, by the ſame gentleman, in which he propoſes ſome improvements. He prefers Vermale's method of taking off a thigh, to Ravaton's; and attempts to reduce the machinery of Verduin, to greater ſimplicity. He ſeems a zealous advocate for this operation, though it does not appear that he ever reduced it to practice. M. Garengoet next appears, with a method of rendering more ſimple, the operation in queſtion; but as we have, in the body of this work, minutely conſidered

ſidered this curious paper, we muſt refer our readers thither for further ſatisfaction. M. Veyret relates the ſucceſs attending two different reſections of a projecting thigh bone, after amputation. M. Louis, ſurgeon of Sal Petriere, has wrote a very curious paper, on the cauſes, cure, and means of preventing a projecting thigh-bone, after amputations. To paſs over the reſt, his means of preventing this diſorder, is ſimple and curious. After dividing the ſoft parts, which, he imagines, ſhould be done at once, he directs the tape, that guided the knife, to be immediately removed, before the uſe of the ſaw, by which means the muſcles, freed from the ſtricture upon them, have liberty to retract; and the bone may be taken off, three fingers breadth higher up, than it would be, without this ſimple precaution. We find a ſecond paper of this gentleman's, containing remarks on the amputation of the different extremities, replete with curious and uſeful remarks.

M. Boucher attempts to ſhew the abuſe of amputation in gun-ſhot wounds, by a long memoir. It appears, that M. Faure has preſented a very intereſting paper, in which he aims to prove, that in ſuch accidents

cidents as require amputation, the longer the operation is delayed, the more ſucceſsful will it be; whilſt M. Boucher, in a rejoinder, attempts to demonſtrate, that under ſuch circumſtances, the ſpeedier the operation is done, the better for the patient.

Mr. Warner, in his Caſes of Surgery, gives nothing new, under the article of amputation. He relates ſome inſtances of the ſucceſs of the agaric, in amputated legs, but doubts its efficacy in the thigh.

Mr. Gooch, a very modern writer, propoſes, as an improvement on amputation, inſtead of the tape, or fillet, to direct the knife, in making the circular inciſion of the integuments, a thick leather cuſhion, the ſide of the blade reſting on which, will make the inciſion exactly even.

In the firſt volume of the London Medical Eſſays, I find nothing on the ſubject in hand; but doctor Hunter gives the hiſtory of an aneuriſm of the aorta, with general remarks on this diſorder, well worth peruſal. In the ſecond volume, we find the amputation of a leg, from an inward gangrene, and the patient recovered, though no bleeding followed the operation. Mr. Kirkland has, with ſucceſs,

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made uſe of bits of ſpunge to the ſtump, where ſuſpicions of a re-abſorption of matter have appeared, and ſtrongly recommends this practice in ſimilar caſes. We find alſo, a very ſimple and curious manner of attempting the operation of ancuriſm deſcribed here.

Mr. Ruſhworth, a ſurgeon of Northampton, gave the firſt inſtances of the efficacy of Jeſuits bark, in ſtopping the progreſs of gangrene; and this has ſince acquired ſo high a character in theſe effects, as to be deemed an almoſt infallible remedy. However, in the eſtimation of Mr. Sharp, and the great doctor Aſtruc, not with that degree of certainty imagined.

Since the finiſhing this work, there appeared in London, a pamphlet, under the title of, a Diſſertation on the Inutility of the Amputation of Limbs. The original, it ſeems, was an inaugural diſſertation by M. Bilguer, ſurgeon general to the armies of the king of Pruſſia. This was tranſlated into French, by M. Tiſſot, and from this is our Engliſh verſion; the title of which, is not ſtrictly warranted by the original. The whole ſcheme of this Diſſertation, is to condemn the amputation of limbs intirely; but the author attempts to prove too

too much: we readily agree with him, that limbs have been often condemned, that, with care, might be well ſaved; but becauſe this operation has been abuſed, does it follow, that it is to be totally diſuſed? No body has inveighed more againſt it, than I; but yet I eſteem it, as a ſure and valuable, though cruel, means to preſerve life. It is true, M. Bilguer acknowledges, that he does not mean his eſſay as a complete treatiſe on the ſubject, and he is certainly right: he is ſimply content to relate the means he employed to prevent amputation, and for this the public are indebted to him. I have read this pamphlet with great attention, and, after all, cannot find myſelf under the leaſt neceſſity to alter any part of the preſent work: on the contrary, I am, by it, the more convinced of the utility of the preſent undertaking to the public; which by demonſtrating with preciſion, in what caſes amputation is to be attempted, and when to be rejected, at once removes all objections to its uſe.

A COMPLETE TREATISE ON GANGRENE AND SPHACELUS.

CHAP. I.

Of Gangrene in general, and its different Species.

I. THE ancient surgeons, who were apt to attribute too much to art, and too little to nature, observing that large wounds were soon followed by inflammation; that this was succeeded by digestion, or suppuration; that incarnation, or

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the generation of new flesh, was the result of this process; and, in fine, that cicatrization, or the skining of the sore, completed their work-----they carefully adapted their medicines to these gradations of healing, and, by this means, confounded the effects of nature with the imaginary ones of their own applications. The consequences of this false theory were, that the healing of sores became a tedious and painful process; and the cure of ulcers the work of years!

II. For, pain being the immediate consequence of every solution of continuity, must necessarily draw on its concomitant inflammation. This determines a greater flux of humors to the part; the assimilation and fermentation of these humors form pus, and the discharge of this carries off the inflammation. Incarnation must then necessarily follow, as the inflammation which, during its existence, opposed this operation (though absolutely necessary to produce the effect) is near over; and cicatrization is what completes the whole. Thus then what has been supposed the work of art only, appears to demonstration the efforts of nature; and of the truth

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of this ſome of the firſt ſurgeons in *Europe* are ſo well ſatisfied, as to find a little ſcraped lint alone anſwer every ſtate of a wound better than this pompous farrago of medicines. And that no doubt ſhould remain on this head, obſerve the cure of a fractured bone: the ſurgeon does his duty well by bringing the ſeparated parts into mutual contact, and ſo retaining them by proper bandage. Every thing elſe is the work of nature. Is not the ſame thing every day exemplified in trepanning, as well as after large exfoliations? The divided ends of a bone will form a boney concretion only; ſeparated muſcles but carneous fibres; and divided ſkin but a new cicatrice. How then can any ſingle application anſwer theſe different ends? It is on this account that dry lint, by abſorbing lightly the diſcharges, beſt anſwers nature's intent; and, that when ſuppuration leſſens, the ſeldomer a ſore is opened the ſooner will it heal, ſince the very diſcharges are the moſt ſovereign balſams.

III. But if the blood, juices, or habit are vitiated, it is certain the diſcharges cannot be benign. And here the abſurdity of our boaſted applications will become more con-

ſpicuous; ſince, in ſpite of them, the ſore will every day degenerate from bad to worſe. In this caſe, 'till the juices become corrected, and the habit mended, the moſt, and beſt we can do, is, to temporize. As I find that ſurgeons have been very far from being ſufficiently explicit in an affair of ſo much conſequence to mankind, and that I flatter myſelf (having long ſtudied the ſubject) that I ſhall be able to throw this whole matter into a clearer light, I ſhall diſtinguiſh the different ſpecies of mortifications under proper heads, ſuch as I have experimentally found them; illuſtrating each diviſion by precept and example.

IV. Mortification or gangrene may proceed from external injuries as well as internal maladies. The internal cauſes are, 1. An highly vitiated diſpoſition both of ſolids and fluids; on which account, the ſlighteſt hurt brings on pain, inflammation, gangrene, ſphacelus, and finally death. In vain in this caſe are profound inciſions, amputation, *&c.* made uſe of. Theſe will never ſtop the courſe of a diſorder materially in the blood and juices. This ſpecies of gangrene, when we come to treat more par-

particularly of, muſt ſuffer ſubdiviſions. 2. The next ſtate of blood which may produce a gangrene, is an hot, bilious, and highly inflammatory one. The parts are endued with a great degree of ſenſibility; and a ſlight hurt will often bring on the moſt alarming ſymptoms. 3. Where there is an oſcitancy and groſsneſs of humors, and no great degree of activity in the blood itſelf, and a wound or hurt ſupervenes, the blood and juices have not activity enough to throw a degree of inflammation ſufficient to form pus on the leſed parts; nor often, by the aſſiſtance of art, ſufficient to diſcuſs.----The humor, like a torpedo, gradually benumbs, 'till the ſcene cloſes in a deadly ſleep. 4. A cancerous diſpoſition of the juices often brings on a moſt terrifying ſpecies of gangrene. In this, from a wart hurt, a ſlight itching, *&c.* will a ſharp humour form, which will gradually conſume muſcles, ligaments, blood veſſels and bones; nor will it ceaſe its advances 'till the leſed parts are finally ſevered from the body. 5. There is another kind of gangrene which ſeems to have its ſeat in the ſolids, and is a kind of endemic diſorder to the poor of this country:

try: whether this proceeds from their extreme poverty in this land, flowing with milk and honey; or, their often working whole days in marſhy grounds, I ſhall not affirm; but certain it is, that an anchiloſis and caries of the bones of the tarſus, coming with or without hurt, is a very general complaint here.

V. The external cauſes of gangrene are numerous and obvious, and will be particularly conſidered where they require different treatment. 1. Theſe ariſing from cold, and intenſe froſt, require a cure peculiar to their ſtate. 2. Theſe from gunſhot wounds, compound fractures, and all the numerous train of unhappy accidents which neceſſarily require amputation, demand only temporizing with for a time; and, as all the different ſymptoms that can poſſibly occur during this period will be fully treated in other parts of this work, to avoid prolixity, the reader is referred to them. But one point of the greateſt conſequence to mankind, and what, if properly attended to, will, I am perſuaded, be the means of ſaving numbers of lives, ſhall be clearly ſettled; namely, whether in ſuch external accidents, as neceſſarily require

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amputation, it be safest to perform the operation on the spot, or wait for some days?

CHAP. II.

Of Gangrene and Sphacelus proceeding from an universal Cachexy, or both Solids and Fluids vitiated.

VI. WHEN a sore or hurt, seemingly of a trifling nature, and in which no capital branch of a nerve or blood vessel is hurt, or tendon engaged, instead of having the regular progressions towards a cure, already described (No. 1, 2.) it discharges a thin sanies, or bloody ichor, degenerates from bad to worse, brings on gangrene, sphacelus, convulsions and death: we must certainly attribute these symptoms to a more remote cause. It must be the blood and juices themselves which, instead of balsamic, secern these deliterious discharges. In such cases what does mutilation avail? If a slight sore on the hand or leg, for instance, should shortly bring on a mortification of these parts, will amputation stop it? Undoubtedly no! For if such insignificant

ficant hurts bring on these fatal symptoms, sure increasing their surface, or giving a greater scope to the vitiated juices to discharge from their confinement, must, instead of lessening, increase the mischief, which is found constantly the case. In the 22d article of the first volume of the *Edinburgh* Medical Essays, you have the case of a painful tumor of the leg, which, by laying open grew infinitely worse; in endeavouring to remedy this by a more liberal use of the knife, the symptoms gained ground, which, by further perseverance, killed the patient without the assistance of amputation. In the same article, you have a similar case laid open; but as the patient would not suffer amputation (nor, I suppose, further incisions) his surgeon and he seperated, heartily tired of each other. You have, in the fifth case of *Le Dran*'s Observations, the history of a disorder which took its rise from a pain in the jaw, and every incision or operation only gave greater scope to this leaven to spread, 'till he died a shocking spectacle.

Obs. 1. A case similar to this happened in our Hospital, where a violent pain in the maxiliary sinus determined a tooth to be

be drawn. Pus was formed, which was eagerly purſued and diſcharged. Deterſive injections were ordered; but the pain and ſwelling increaſing, further manœuvres were intended. I was, however, conſulted; the tumor had reached the orbit; her pulſes were extremely quiet, and the eye diſtorted, and without ſight. I convinced this perſon his plan was wrong; put the woman under a ſlow courſe of mercury, and the woods with bark, though near five months with child. The tumor of the orbit and jaw gradually ſubſided; her ſight returned by degrees, and ſhe has ſince continued well. Miſtaking the ſymptoms for the cauſe of this woman's complaints, had like to prove as fatal to her, and her burthen, as the preceding caſe.

7. In the third tome of *La Motte*'s Surgery, caſe 298, is the treatment of a mortified coccix, from an internal cauſe. The more he cut the further the diſorder ſpread, 'till in ſome days ſhe died a miſerable object. His reflections from this, and, as he ſays, from other caſes treated in a ſimilar manner, and with like ſucceſs, are extremely juſt; and taught this excellent practioner

and obſerver a more rational and ſucceſsful method of cure.

VIII. Be it then an axiom in ſurgery, that in all painful tumors, hurts or ſores, in which no principal parts are engaged; which degenerate from bad to worſe, without any viſible cauſe, that the knife is the worſt reſource you can go to, ſince it never anſwers any end, but that of deſtroying the poor efforts of nature, and hurrying the ſick to his grave! We muſt, however, from this general rule (exempt cancerous caſes) as will be ſhewn in its proper place.

IX. But becauſe experience is always conſonant to ſolid reaſon, we ſhall from theory prove the juſtneſs of this practice. Oppreſſed nature has various ways of throwing off what offends her. In plethoric habits it will be ejected by inflammation and abſceſs; in others, by ſcirrhus; and, where the humors become more active, cancer. In the preſent caſe, the univerſal depravity of the blood and juices may be thrown on one particular part. But, as in the inflammatory ſtate, no one would uſe the knife 'till the abſceſs was formed, ſo here the peccant matter ſhould, by warm ſtimulants, antiſceptics, cordials and poultices, be

be invited to depoſit all her malignity: nay, a very ſenſible ſeparation of the morbid from the ſound parts ſhould ever precede the uſe of the knife; otherwiſe nature's endeavours to throw off the malignity would be fruſtrated. For by haſtily taking off the limb, before the infection is intirely lodged there, demonſtrably, not only cannot give relief, much leſs cure the patient, but muſt alſo give a higher degree of activity to the remains of this leaven, as nature is now leſs able to combat it.

X. This ſtate of the blood and juices being ſolidly proved, we ſhall diſtinguiſh it by four different claſſes.

Claſs the firſt. The ſolids and fluids are ſo exaltedly vitiated, that all attempts of art to reſtrain their progreſs are uſeleſs: like a cataract, or mountain flood, they only increaſe by reſiſtance, and at once hurry the poor carcaſs to the grave.

Claſs the ſecond. Though the habit of body be greatly vitiated, yet not in ſo high a degree, as in the preceding caſe. In this ſituation, by ſtrong ſtimulants, cordials, temporizing and patience, nature may throw the general vice to ſome particular part or parts; and thus, by the loſs of it,

or them, relieve herſelf from this univerſal cachexy.

Claſs the third. Suppoſes a leſs degree of malignity than in the above ſtages; therefore, by patiently purſuing the ſame plan, the habit may be intirely diſengaged, without loſs of limb.

Claſs the fourth. In this ſtate, though the blood is not highly vitiated, yet, thro' defect of its balſamic, bituminous, or cohering parts, all ſores, or ſolutions of continuity are, with great difficulty, and by length of time only, healed. As theſe diviſions are extremely intereſting, by explaining, in the cleareſt manner, the different periods of this ſpecies of gangrene, we ſhall allot a particular chapter for each claſs.

To

To EDWARD SMYTH, M. D.

Of the *King* and *Queen*'s College of Phyſicians, *Dublin*.

The following Chapters on the *Univerſal Gangrene* are humbly inſcribed by the AUTHOR, as a reſpectful acknowment of his moſt eminent abilities and ſtation.

CHAP. III.

Of the Eſthiomene, firſt Claſs, or higheſt Degree of Vices in the Solids and Fluids.

XI. WRITERS diſtinguiſh three ſtages of mortification. The gangrene, or tendency to mortification, which often gives way to remedies. The ſphacelus, or complete mortification, which can only be remedied by amputation. The eſthiomene, where not only the part is deprived of all ſentiment and circulation, which may be known by the profoundeſt inciſions, yielding no blood; but alſo the blood and animal ſpirits are highly affected, and which rarely admit of a cure. Of this laſt is our preſent inquiry.

Obſ. 2. The child of a ſhopkeeper of this

this city, a girl, between five and ſix, of a remarkable floridneſs, and fullneſs of the face, had, when ſhe was about two years old, ſeveral biles broke out on her head, neck and cheſt, which continued for about four months, when ſhe ſeemed to recover ſtrength and conſtitution; was, in the month of *November*, 1756, ſeized with a ſmart fever, which ſeemed to precede the ſmall-pox, it being, at that time, rife in town. Her mother had her blooded the morning after the attack, being the 8th of ſaid month, in the arm. The orifice ſeemed ſmall, and the vein not well cut; at leaſt her mother aſſured me that, with difficulty, they could get half a tea-cup-full of blood from her. Early next morning the garter ſeemed bloody, as well as her ſhift, and the ſheets. Upon opening the part, the orifice had an indifferent aſpect, and a thin, bloody ſanies dribled down the arm, which they endeavoured to ſtop with ſcraped lint, cobweb, and a variety of things. Finding nothing anſwer, they ſent for me. I found the orifice open, the lips diſcoloured, without any ſign of healing. On examining the arm, I could find no tenſion or inflamma-

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tion of the biceps, nor ſign of an aneuriſm, or any thing that could make me ſuſpect it, the conſequence of the operation. As I had attended the child in her former ſickneſs, and knew her to be of a bad habit of body, I concluded this was the conſequence of a total diſſolution of the craſis of the blood (which I was confirmed in by ſeveral black ſpots that appeared on ſeveral parts of her body, ſome as big as a ſilver ſix-pence) and that ſhe would certainly die. In vain did I uſe fine lint, ſoft compreſſes above and below the orifice, lycoperdon, agarick. Anon, flour, and white of an egg, which, by its adheſive quality, might keep the lips of the wound cloſed; or, at leaſt, ſo as to hinder any more of this ſanies from eſcaping. The prodigious thinneſs of the blood, and the little diſpoſition of the parts to unite, proved an inſurmountable obſtacle! I attempted to try what ſucceſs internals would produce. She took, for her drink, a decoction of roſe-leaves, with the ſp. vitrioli, ſweetened with fine ſugar, as alſo the bark, with alex. vitrioli. The dribling was not leſſened that nor the next day; and a total mortification in a manner appeared.

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I requeſted Dr. *Martin* to viſit her that night, the caſe being ſo extraordinary; but he was, in a manner, afraid to look at her.----We deſired, that as ſoon as the child died ſhe ſhould be immediately covered with cloaths, wet in ſpirits, for fear of any infection, and then coffened and buried; all which was done before next morning, ſhe dying that night.

Obſ. 3. A young gentleman of about eighteen, ſeemingly of a healthy conſtitution, but remarkably pale-complexioned, not having, ſince a child, any complaint that I could hear of, except a ſlight ſore in his leg, was, about the latter end of *April*, 1759, ſeized with a pain in the neck, being then in the country. This was treated, for ſome days, with ſuch maturative poultices as are, on ſuch occaſions, uſual; and, on his coming to town, Dr. *Clampet*, a very ingenious phyſician of this city (lately deceaſed) was ſent for, to treat him for a lax, which it ſeems had accompanied this tumor. But the remarkable fœtor in his ſtools, and the little progreſs the tumor made, cauſed the doctor to ſuſpect that the matter determined for this tumor might be re-abſorbed into the maſs

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of blood; and, therefore, if there was any fluctuation, he judged the ſpeedier iſſue it had the better, without waiting for maturity. To determine this matter I was ſent for, *May* 16th; and though I readily agreed that ſome ſort of pus was lodged there, yet it lay ſo deep that I deemed it very dangerous to attempt it for a few days more. For this tumor was rather flat than elevated, and extended in the integuments, in the middle and left ſide of the neck, and of a duſky color, ſeeming to have little of pain or inflammation. He had beſides a great thirſt, and an amazing quickneſs in his pulſe; inſomuch, that it might be ſafely affirmed that they beat above an hundred times in a minute. Not ſatisfied with this, the Doctor deſired another phyſician ſhould be called in, to determine if ſuch delay was conſiſtent with the patient's ſafety. Accordingly Dr. *Martin* was ſent for; and it was, on conſultation agreed, that, for a couple of days more, the ſtrongeſt maturative poultices and ſtupes ſhould be uſed, the ſpeedier to invite nature to this outlet. However, the effects very little anſwered our expectations. Things being thus circumſtanced, on the morning of the

18th, in the preſence of theſe gentlemen, I made ſuch an aperture with my abſceſs lancet as I thought the patient's ſafety, and the depth of the matter required: but no pus followed! The inciſed parts looked very thick, and of a very ugly color. Satisfied, however, that pus was there, I firſt introduced my probe, and then my finger, in order to direct me to the inciſted part, which was preſently ſucceeded by my lancet, and immediately near half a pint of a pus, in color and conſiſtence like milk, and of no ſmell, burſt forth. The wound was dreſt with dry lint and plaiſter; and, as the parts ſeemed ſo ſluggiſh, I had a poultice of oatmeal, ſtale beer, and Venice treacle applied very hot over the whole; and theſe gentlemen ordered what they judged moſt neceſſary to anſwer theſe intentions. The poultice was again repeated that night; and, upon opening it next morning, a large quantity of a bloody ichor came from it, and the denſity of the teguments opened, ſeemed to increaſe, and become worſe colored than the preceding day. We had the ſore well ſtuped, and I dreſſed it with hot oil of turpentine, plaiſter, and the poultice as before. That night it was again

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ſtuped, dreſſed and poulticed, and his pulſe ſeemed much more moderate and regular, without the leaſt intermiſſion. About four next morning I was ſuddenly called out of bed to ſee him, and preſently after followed by Dr. *Martin*. We found his face ſwelled at the other ſide, and, on taking off the dreſſings, from the anterior edge of the ſore, under his chin, and part of his cheſt completely ſphacelated with numbers of phlectinæ; and, in ſpite of all our endeavours, he died at ſeven o'clock that morning, preſerving his intellects to the very point of diſſolution!

Obſ. 4. A cooper, aged about 40, who had been in *May* ſeverely attacked by a fever, which was ſucceeded by a lax, that continued about three months, and reduced him very low; was, in the middle of *October*, 1759, ſeized with a violent pain in an upper jaw-tooth, as he imagined; to relieve which he applied to an apothecary in this town, by whom the tooth was drawn with very little difficulty. Immediately after which, a large diſcharge of blood followed, and he cauſed him to waſh his mouth with brandy. That night the jaw and face began to ſwell, and this ſwell-

ing increaſed conſiderably by morning, when I was requeſted to viſit him. I found a very diſagreeable ſmell from the parts, the jaw greatly tumified; diſcolored inſide, and a tumor forming towards the glottis. As he was low, I ordered ſome glaſſes of claret, generous broths, and a ſtrong decoction of the cortex to take inwardly; with parts of which, tincture of myrrh, and Venice treacle he waſhed his mouth often in the day. A ſtrong poultice of oatmeal and ſtale beer was applied externally to the jaw, and down towards the throat.----Towards night the tumor increaſed ſurpriſingly, with a fœtor, and difficulty of ſwallowing; and, in ſpite to the beſt applications, he died next morning; ſo exaltedly corrupt was the whole habit of body!

Obſ. 5. *Cahill*, a butcher of this city, aged about 50, pale faced, and always a good deal bloated, had been ſubject, for above 20 years, to a partial dyſuria at times, which was always relieved by a diſcharge of pure blood, as I was aſſured; and he would continue well for two or three months. But, upon any colds, he again relapſed, and was in ſome days relieved by his

his uſual hæmorrhagy. I could not find that he ever diſcharged any gravel, or ſandy matter before, or when the fit grew eaſier; but there was generally a good deal of a glary, gelatinous matter at the bottom of his urine; ſuch as I have often ſeen when the bladder was no way affected; and which I have alſo obſerved, where there has been ſtrong reaſons to ſuſpect an ulcer of the bladder. This was the moſt exact account I could get of his former complaint. In about the middle of *January*, 1760, his diſorder returned: his urine came away by ſmall quantities, ſeldom exceeding three or four ounces, and with great pain. He waited for ſome time for his uſual relief, but with no ſucceſs. *February* 10, he had a complete retention, with great pain, in the bladder, and next morning he ſent for a phyſician. He prudently ordered a bath of the relaxing kind, with what elſe he thought neceſſary, but to little effect, the man complaining grievouſly of a pain in his bladder.

At four that afternoon, I was ſent for to paſs the catheter; but, on examination, found the yard ſurpriſingly ſwelled and large, as to make any attempt of paſſing

the

the inſtrument impoſſible. It was alſo diſcolored, and a black, watery bliſter covered it. This I immediately cut, and, after the diſcharge of the water, ſcarified pretty deep, but no appearance of blood or ſentiment. 'Till ſuch times as ſtupes could be prepared, I had the parts wrapped up with warm brandy cloths. Theſe were prepared from the common, bitter herbs, with *rad. hellebor. alb., enul. camp., gentian*, and *ſal ammoniac.* The parts after ſtuping were to be frequently daubed with a mixture of *ſp. vin. camph., ſp. ſal. ammon., volat.*, and *mel. ægyptiac.* He alſo took half a drachm of powdered cortex, every half hour, in a glaſs of claret. His pulſe was regular, but low, and his extremities were very cold, but his intellects ſtrong. I recommended this time to him to uſe, towards the great end of his ſalvation, and ſettling his worldly affairs; and not to diſcourage him, hinted that this peace of mind might give theſe medicines a favourable effect. I returned at half an hour paſt ſix, and found the ſphacelus had reached beyond the root of the penis. This I had immediately wrapped up in a compoſition of *ſtyrax*, and *gum. galban.* melted

ed and ſoftened with oil of turpentine, and the ſtupes to be continued round the region of the bladder. But notwithſtanding all endeavours, he loſt his ſpeech in half an hour, and expired before eight o'clock. In the morning he had no ſwelling in his yard, and it was not before twelve o'clock, that it began to appear; it became completely ſphacelated by ſix, and he died as above. I was very fond to open him to ſee the cauſe of his diſorder, which I offered to do gratis, with all the expreſſions I thought moſt likely to prevail; but they would not conſent to it. However, from the whole, we may reaſonably infer, that his diſorder was a malignant ulcer in the bladder, near its neck, the moſt likely place to pitch upon, on account of the many glandular ſubſtances thereabouts, as well as the conſiderable blood veſſels, ſubſervient to their nouriſhment; ſome of which might probably become eroded by the acrimony of the humor; and ſo when upon irritation the parts become inflammed (which cold would certainly do) the diſcharge of blood, which ever comes moſt to a pained part, gave immediate relief by, for the preſent lightening the part. This

eaſe

eaſe might probably give time to the extremities of the veſſels to unite, as nature is wonderful in her efforts; which being tender would ſoon burſt open again, upon any new acceſs of pain; and all this we ſee exemplified in manifeſt ulcers every day. Now, though the bleeding for the preſent might give eaſe, yet conſtant evacuations of a fluid, with which our very exiſtence is ſo cloſely connected, muſt weaken the craſis of the whole maſs; make it thinner, leſs nouriſhing, colder, and more expoſed to forward any bad diſpoſitions in the ſolids. And it is highly probable, and upon diſſection, I believe, it would appear that the bladder had been in a corrupt, mortified ſtate, for a good while, before it appeared externally!

XII. It may be aſked, what would give this man a chance for life? In my opinion, his cure ſhould be attempted ſome years before his death, which, probably, relaxing baths, ſoftening balſamic injections, the ſweetning woods, with millepedes, for a time; and, afterwards, a milk diet, with vegetables, and light, nouriſhing broths, might if not totally effect, at leaſt ſoften the violence of, the diſorder, and make life more com-

comfortable and laſting. Theſe reflections I could not refuſe making, as I deem them uſeful; and that I am perſuaded numbers are attacked with diſorders of the bladder, occaſioned by too frequent uſe of violent purges, and which are, upon growing violenter, imputed to pockey taints. The miſerable wretch is hurried into a courſe of mercury: he ſeems eaſier for a time, becauſe the evacuation of the juices of his body leaves a kind of manity behind. As his ſtrength returns, ſo do his complaints, 'till at length he falls a ſacrifice to ignorance; becomes uſeleſs in his generation; and poſterity are robbed of the fruits of his body.

Obſ. 6. A clergyman of great learning, of a middle age, and tolerable conſtitution to appearance, in *April*, 1763, at dinner at a gentleman's houſe, ſome diſtance from this town, cut one ſide of his middle finger very ſlightly. A bit of rag was, on the ſpot, tied round it, and no further notice taken. Next day he complained a good deal, and ſeemed a little comatous. The third day, which was *Sunday*, he ſeemed very heavy, ſpoke at times very incoherently, and as if raving. The finger and

hand had a duſky, red ſwelling, and a ſmall ſtreak of red run up the inſide of his fore arm. Next day he was bled, and poultices applied to the part, but with no advantage. The ſwelling had reached the fore arm; and the red ſtreak the ſhoulder. Perceiving him ſo much worſe, they requeſted he would ſend for a ſurgeon, which he would not hear to, the accident appearing ſo trifling. However, finding on *Tueſday* that he ſlept little, and raved almoſt the whole night; that his hand became black; and that the ſwelling had reached his ſhoulder, they inſiſted on a ſurgeon's being ſent for, and he pitched on me *only*. The evening of that day I arrived. I found the entire hand, and half the fore arm completely ſphacelated, and diſcolored even to the elbow; the arm to the ſhoulder greatly ſwelled, but of a duſky, red color, and received the preceding account.----I had the bitter herbs immediately boiled with lees of wine, and a good deal of *ſal. ammoniac*, to ſtupe from the ſhoulder to the elbow, making little account of the reſt; and to make the revulſion to the part the ſtronger, made ſeveral profound inciſions in the arm, which I dreſſed with doſſills dipt in a mix-

a mixture of *mel. ægyptiac*, *ſp. roriſmar.*, and *ſp. ſal. ammon.*, and covered the parts with a poultice of oatmeal, ſtale beer and whiſky, mixed. I gave him inwardly the *cortex peruvian.* in powder, ſtrong port whey, and, to help to diſengage the head, had the feet bathed in pickle, and cabbage leaves applied to the ſoals of the feet. Next morning I found little ſigns of amendment: the hand was in a manner cold; the fore arm full of phlectinæ; and the arm of an ugly color.----The ſtupes, inciſions, dreſſings and poultices as above were repeated----he ſtill raved; but, at the ſame time, when ſpoke to no one made clearer anſwers on every ſubject.-----In the evening the ſame applications were again uſed, with ſtrong broths at times, and ſinapiſms applied to the ſoals of the feet.----His pulſe ſtill quick, as when I firſt arrived, but no kind of intermiſſion. In a word, he died the next day in ſpite to all our endeavours. But what I thought worthy of remark was, that two or three hours before his diſſolution, the arm, and even the fore arm, looked ſurpriſingly better; but, early that morning, the pulſe gave the firſt alarm, with which I then ac-

quainted the family, and ſo exactly as to predict almoſt the very moment of his diſſolution. Many were of opinion that I ſhould at firſt have taken off the arm; but acting on unerring principles, I did not much attend to inviduous cenſure.

CHAP. IV.

Of the Sphacelus; or, ſecond Species of Univerſal Gangrene.

XIII. AFTER diſmiſſing the laſt chapter, in which we were little more than witneſſes of the fatal ravages of malignity, without being able to form any poſſible method of extricating nature, we now come to a more agreeable ſubject: where nature, properly aſſiſted by art, will be enabled to throw off the peccant matter from the nobler parts to the extremeties hurt.

XIV. We have already ſufficiently inculcated the neceſſity there is to avoid amputations, or conſiderable operations in ſores that daily degenerate from bad to worſe, without any ſenſible cauſe.----The topical applications, in ſuch caſes, are, generally

ſtupes,

ſtupes, embrocations, dreſſings to the parts and poultices. The ſtupes may be collected, according to the indications from the following----*ſummitata abſinthii communis, centauræ minoris, roriſmarinæ, lavindulæ----flores chamomœli, ſambuci, ballauſt., rad. bryoniæ, enulæ campan., helleboris albi----fol. nicotian., ſal. ammon. marin*----out of ſome of which ſtupes may be made by boiling on water; to which may be added lees of wine, ſoap aſhes, brandy, firſt run of whiſky, *&c.* with ſuch like let the parts be ſtuped extremely hot, and often in the day. After which an embrocation may be prepared from ſome of the following, with which the parts may be fomented, *e. g. Sp. vini camphor., ſal. ſp. ammoniac., volat., mel. ægyptiac., lenim. volatile, lenim, ſapon.* &c.----The ſore, or ſores, if any, ſhould be dreſſed with ſome animating digeſtive, in which is *ol. terebinthin. juneperi,* &c. warm. *La Motte,* and others, and even *Aſtruc (Maladies des Femmes,* tom. 3.) recommend, on theſe occaſions, cauſtic applications; but as our intentions muſt be to invite the malignity from the blood to this part, it is manifeſt ſuch applications will rather prevent this effect. It is, therefore, with great juſtice,

juſtice, that we prefer warm digeſtives to ſuch applications.---Poultices of the heating kind ſhould, on theſe occaſions, be never forgot----ſuch are cataplaſms of oatmeal, and ſtrong beer, boiled together, to which may be added Venice treacle, and the cummin ſeeds in powder; or a poultice may be made of coriander and cummin ſeeds powdered, and boiled with ſtrong beer, brandy, whiſky, *&c.* *Aſtruc*, and many modern *French*, highly extol a poultice made of ſoot, myrrh, and *ſal ammoniac* in powder, mixed up with honey, and ſometimes a little *mel. ægyptiac.*

XV. Whilſt theſe ſtimulating and warming applications are inviting the malignity to the ſurface, inward medicines ſhould not be forgot. The Jeſuits bark has been cried up as a ſovereign remedy in theſe caſes in *England*, for above 50 Years; though Mr. *Sharp*, in his Critical Inquiry into the preſent ſtate of ſurgery, as well as Dr. *Aſtruc*, in the above work, ſeem to doubt much of its efficacy in theſe caſes. As for me, I muſt own, that in many caſes, where I found it neceſſary, the ſtomach rejected it, and yet they have often done well; and in others the quantity taken was too

ſmall

ſmall to attribute any ſenſible alteration to it. However, we know it to be a good medicine, and a great ſtrengthner, where the ſtomach will bear it, and, as ſuch ought not to be omitted. Other medicines, of the cordial kind, ſhould not be forgot; which theſe, who have more faith in fiery, diſtilled waters, indigeſtible powders, electuaries, *&c.* than I, may order at diſcretion. For my part, I am careful to ſupport my patient with ſtrong, and ſeaſoned broths, freſh eggs, a glaſs of claret, port wine whey, *&c.* Theſe are my cordials, and will be found, by experience, preferable to the filthy, and poiſonous ſlops of the ſhops.

XVI. Having thus eſtabliſhed a general method of cure in theſe melancholy caſes, which is drawn from experience, and from the ſame principles, by which we endeavour to promote ſuppuration in large abſceſſes; that is, by throwing off the peccant, and deliterious principles, from the noble parts, we ſhall endeavour to deſcribe ſuch ſtates of this univerſal gangrene as neceſſarily require amputation.

XVII. Though profound inciſions about the parts be ſometimes an excellent ſtimu-

lus,

lus, with the other helps mentioned (XIII.) in order, by this irritation, to invite the malignity to the parts, by giving to the blood, a ſufficient degree of activity; yet it is demonſtrable, that exciſion, or taking off the limb, ſhould be carefully avoided, as we value the patient's ſafety. Nevertheleſs, as we know, there are certain caſes, in which life cannot be preſerved, without taking off the limb, we muſt here obſerve, that, when the malignity is intirely depoſited on a part, the leg, for inſtance; that the mortified parts ſeem cold, livid and ſenſeleſs; that the dead parts begin, not only to ſeparate from the ſound, but that a laudable ſuppuration becomes eſtabliſhed from theſe laſt----not only this; but 'till it ſhall appear that the pulſe is well eſtabliſhed, the appetite reſtored, and health pretty well confirmed, ſhould not the limb be taken off. In a word, *'till it ſhall appear, in the cleareſt manner, abſolutely impoſſible to preſerve or reſtore the limb, ſhould amputation be deferred.* Some, I know, may imagine, that the proximity of the mortified fleſh may infect the blood and juices again, and that ſo great a delay, as I mention,

tion, may be highly dangerous. But what nature left to herſelf, in ſimilar caſes does, we ſhould follow. Now we know, that ſhe herſelf has effected an intire ſeparation of the mortified parts from the ſound. To this effect, *La Motte*, in the 3d tome of his Surgery, tells us of a poor woman, in a moſt deplorable ſituation, from a complete ſphacelus of the intire leg; but which ſhe would not ſuffer to be taken off. Deſpairing of her recovery he quitted her; but, in ſome time after, learned, that nature performed a complete ſeparation of this leg from the body, at the articulation of the knee, and the woman recovered!

Obſ. 7. The caſe of a family at *Watiſham*, as publiſhed in all the *Engliſh* papers, by Dr. *Wollaſton*, is a ſtrong proof of what is here advanced. John *Dowling*, a poor, labouring man, had a wife, and ſix children; the eldeſt, a girl of fifteen, the youngeſt about four months. They were all, about the middle of *January*, 1762, ſeized with violent pains in one, or both legs. In about five days, the legs became blue, and covered with black ſpots. The mortification became gradually formed, and nature began to ſeparate the livid from

the ſound fleſh. In *April* following their caſes ſtood thus:

Mary, the mother, aged 40, had loſt the right foot at the ankle; the left foot was alſo ſeparated, and the bones of the leg were almoſt dry, with a little putrid fleſh adhering in ſome places. The fleſh is ſound to about two inches below the knee; and the bones would have been there ſawn off, but ſhe would not conſent to it.

Mary, aged 15, both legs off below the knees.

Elizabeth, aged 13, both legs off below the knees.

Sarah, aged 10, one foot off at the ankle; the other foot was affected, but not ſo highly, and is now again ſound.

Robert, aged 8, both legs off below the knee.

Edward, aged 4, both feet off.

An infant, 4 months old, dead.

It is remarkable, that, during all the time of this misfortune, the whole family are ſaid to have appeared in other reſpects well; eat heartily, and ſlept well, when the violence of the pain began to abate.

The mother is now emaciated, and has very little uſe of her hands. The eldeſt girl

girl has a ſuperficial ulcer in one thigh, and ſeems alſo ill. The reſt of the family are pretty well; the ſtumps of ſome of them perfectly healed. Thus far the public advertiſement of Dr. *Wollaſton* to promote a collection for this unhappy, poor family.

Obſ. 8. The child of one *G*----, a dyer, of *Limerick*, now five years old, at the age of twenty months was ſeized with the meaſles, which was ſucceeded by a fever, that continued about a fortnight. His recovery was but ſlow; and, during this period, without any previous ſigns, in the ſpace of twenty-four hours, both fore arms at the wriſts, and both legs at the ankles, became completely black, horny, and mortified. The nurſe applied, the morning of the diſcovery, and again at night, poultices of warm cow-dung; and, upon opening them the next day (as the mother affirmed to me) the parts looked as well as ever; nor could the leaſt diſcolored traces be found. They, nevertheleſs, the following day, became again black, horny and weak, with very little pain. The above poultice was conſtantly applied, morning and night, for thirteen days more; at the end of which time, both hands, at the

carpus, were found in the morning poultice ſeparated from the body, without pain, inflammation, or hæmorrhagy! A thick, black, and almoſt impenetrable buff, at the ſame time, ſeparated from both legs, ſo as to leave the bones in a manner bare. In due time a new ſkin was formed: the legs are firm and ſtrong, but the cicatrices deep and very viſible. The ends of the *cubitus* and *radius* are covered by a firm cicatrice; but in the right there is a conſiderable tumor near the *olecrane proceſſus* of the *cubitus*, which is, nevertheleſs, quite free from pain, or uneaſy ſenſation. This child, notwithſtanding theſe extraordinary accidents, is as wholeſome and fine looking a boy as need be ſeen.

Obſ. 9. ----- *Murphy*, a lad of about 22, ſeemingly of a good conſtitution, well known in *Ennis*, and the county of *Clare*, as a fidler; about nine years ago was ſeized with a fever, which was ſucceeded by a violent pain in the left leg, that gradually deſcended to the foot. Blue ſpots began to appear about the foot, which gradually ſpread, became black, and, in a few days after, the foot, at the articulation of the aſtragal, with the tibia, fairly and ſpontaneouſly fell

fell from the tibia! An inconſiderable hœmorrhagy followed, which was eaſily maſtered. Two or three ulcers, partly diſcolored, were formed on the inferior part of the tibia, which gradually healed; as did the extremities of the bones. About a year before, this poor lad had the right leg taken off, above the knee, by Mr. *Garnet*, a military ſurgeon, then in this city, and me; and got a ſpeedy and good cure. The diſorder was a caries of the external condyle of the femur, with an anchyloſis, and deep fiſtula.

Obſ. 10. *March* 12, 1756, a child, about ſix years old, was brought from the country with a hurt in her leg, near the inſtep (I ſuppoſed it a burn) received ſome time before. The part was black and inſenſible. I ordered ſtupes of the bitter, diſcutient herbs, with *ſal. ammoniac*, and lees of claret, with which the leg was to be bathed twice a day, very warm; and a warm digeſtive to the ſore; over which was a poultice of oatmeal and ſtale beer.---Inwardly I directed a decoction of the cortex, with orange-peel and cinnamon; and to the ſtrained liquor, *elix. vitriol*, &c. I would have firſt ordered ſome light mercurial

purge

purge or two, but that the child ſeemed too weak.---I counted by the outward application that the black part would ſeparate from the ſound, and which, in a manner, was impenetrable to the knife; having endeavoured to ſcarify, that the dreſſings might reach to the ſound parts, but could ſcarce make any impreſſion on it. I alſo hoped that the internals (of which the child was to take a wine glaſs full four times a day) would warm, and diſpoſe the blood to further our endeavours. By this method, the 16th, a viſible ſeparation, round the edges of the ſore, ſeemed to promiſe a total ſeparation of the morbid part; and which accordingly happened the 18th; but then the bone appeared diſcolored, and black underneath. For the fall of this eſchar left the bone perfectly bare it's own breadth; and the fleſh, round the edges of the ſore, had a paliſh, red aſpect. The hollow was filled with lint, wet in brandy, and the ſame ſtupes, poultice and internals continued. The 20th, the fleſh ſeemed to crack at both ſides the ſore to the foot; and, by the 23d, it was intirely ſeparated, ſo as to leave the tibia, bones of the tarſus, *&c.* bare to the toes. The limb was not now opened

opened above once in two days; but wrapped up in linen, conſtantly moiſtened with ſtrong ſpirits, and the internals continued. All this time the child complained very little, and ſeemed, in point of ſpirits, or appetite, no way altered for the worſe. The 27th, Dr. *Martin*, and Mr. *White*, ſurgeon, were called in, and we all concurred to have the operation of amputation performed; not that we expected any great matters from it, but that it might give people a handle to ſay, that all that could be done was not for the patient's advantage. The 28th, I took off the leg below the knee, in which nothing material happened. The ſore, for ſome days after, went on ſo well, that the people thought they could dreſs it themſelves, which was very eaſy, conſiſting of nothing but lint and brandy, covered by plaiſter, and a retentive band. In a word, *April* the 3d, the child died of this diſorder, in ſpite of all our endeavours.

Obſ. 11. *Bridget M'Inerhiny*, a very poor country woman, of about 40, of a delicate conſtitution, and the mother of many children, in the beginning of laſt *September* was ſeized, in walking the floor, with a ſudden

a ſudden pain and weakneſs in the right leg, ſo as to drop down. A duſky-red ſpot appeared in the middle of the leg, and the pain was extremely acute. Active and warming ſtupes and poultices were applied; and, in ſome days, the tumor ſeemed to point, and was opened by ſome man in the neighbourhood. But, inſtead of a great diſcharge of matter, as was expected, a ſmall quantity of blood only followed, and the lips of the ſore were diſcolored and thick. Her pain became now more violent, and the mortification ſpread with amazing rapidity, ſo that in about four weeks, from the firſt attack, from the knee to the toes, was the moſt complete ſphecalus formed I ever ſaw. The parts were quite ſhrivelled, and perfectly black, with an inſupportable fœtor. A ſenſible ſeparation of the putrid parts, about the edge of the rotula, and nearly circular, appeared. This was exactly her ſituation when admitted into our Hoſpital; and the above the detail of her caſe, which I had from herſelf. For two or three days the putrid parts were covered with cloths, conſtantly wet in ſpirits; and ſhe took inwardly warm cordials, and the bark. She complained

plained of exceſſive great pain in the parts, and yet no degree of inflammation appeared, nor was the pulſe remarkably quick. The great importunity of the woman, joined to the very great ſtench of the parts, determined us on taking off this limb above the knee, which was accordingly done next morning. Not the leaſt drop of blood followed the operation, tho' the tourniquet was intirely removed, and the operation performed in the ſound parts, and above four inches from the ſpontaneous ſeparation formed by nature! The divided fleſh had a paliſh aſpect, though the bone was perfectly firm and ſound. The extremities of the arteries ſeemed cloſed by a black plug, and, though bathed with a ſponge and hot water, for ſome time, yet not a drop of their contents eſcaped.

XVIII. Here then are the ſtrongeſt evidences that can poſſibly be demanded in ſupport of this practice. Where nature, left to herſelf, has performed ſuch wonders, what may we not hope for when properly aſſiſted by art? The two laſt caſes oppoſed to the four or five preceding them prove to demonſtration, that haſty amputation is not the proper help that nature wants. The

uſe of nouriſhing, balſamic diet, and invigorating medicines, aſſiſtedby warm, active applications to the parts, are the certain ones. And this method is not only conſonant to experience, but confirmed by anatomy and reaſon. For, as the malignity begins to depoſit in part, and that the mortification becomes circumſcribed, it is demonſtrable, that, where the ſeparation is formed, a new kind of circulation is alſo eſtabliſhing, ſimilar to what happens after amputation. Therefore, the ſtench, or proximity of the ſphacelated parts cannot affect the blood and juices, as it becomes, in ſome meaſure, a part ſeparated from them; ſince it is the want of this circulation, that is the cauſe of the change. So that, if any danger is to be apprehended, it is from too haſty a uſe of the knife. I know of no objection to this rule, but one, and that is ſo obvious, as hardly to require mentioning----namely, where a conſiderable fracture happens in a conſtitution of this kind; and that, beſides a formed mortification, the fractured part, for want of proper nouriſhing juices, no way adheres to the reſt of the limb. In this caſe, a fever and alarming ſymptoms are kept up after nature has depoſited

poſited her load on the limb, which are only the conſequence of this irritation. In ſuch ſituation you muſt amputate ſooner.

CHAP. V.

Of the Gangrene, ſo properly called; or, of the third Species of Univerſal Gangrene.

XIX. IN this, as in the preceding caſes, the ſlighteſt hurt will give riſe to very alarming, and dangerous ſymptoms----the ſcratch of a pin, a hurt, or burn, becomes, in a very few days, a caſe requiring the conſideration of the firſt ſurgeons. The ſore becomes diſcolored: it diſcharges a thin ſanies; a duſky red (not an inflammatory) color ſurrounds the ſores. In a day, or two more, this becomes a part of the ſore; the pain is great, without any degree of inflammation, juſtly ſo called, becauſe laudable pus is ever the conſequence of inflammation. In fine, the friends, and often the ſurgeon, are at a loſs what to do! In vain does he attempt to correct this bad diſpoſition by a liberal uſe of the knife; becauſe the ſound fleſh to

day will become to morrow mortified. Succeeding inciſions bring on freſh misfortunes; 'till at the time the operator thinks he has exerciſed the utmoſt limits of his art, he has the mortification to ſee his patient a non entity!

XX. But if we reverſe this picture, and that a man of ſenſe will cooly aſk himſelf, what end he propoſes by all theſe inciſions? That if the diſcharges from a ſmall hurt give the parts ſo dangerous a tendency, ſure increaſing this diſcharge cannot mend, but rather make them worſe. That it is more the habit of body, than the ſore, that wants mending, he will quickly ſee the neceſſity, if not of altering, at leaſt of extending his views, and giving greater attention to the ſymptoms. If he finds the pulſe full, and the ſore attended with great pain, he will probably find it very expedient to draw blood. In ſuch caſe, purging phyſic comes in alſo very ſeaſonably, and none will be found ſo effectual as mercurial purges, But if he finds the pulſe low, the patient of a delicate, and tender frame, very little real inflammation about the ſore---- becauſe, as we have already obſerved, *laudable pus is ever the conſequence of this.* Its color

lor a duſky red. The ſwelling (if any) tho' red, yet inert; and the diſcharge a red, yellow, or thin ichor, with an earthy ſmell, lowneſs, fainting, *&c.* In this caſe, his method of cure muſt be more extenſive. He muſt ſpeedily make uſe of the ſtimulating ſtupes, embrocations and poultices, deſcribed (XIII.) the ſores muſt be dreſſed with warm digeſtives, very hot; and a ſtrong decoction of the bark on cinnamon water, with *elix. vitriol.* and warm bitters, muſt be given inwardly, as well as the nouriſhing broths, wine, *&c.* as directed at (XIV.) By this method, he will ſee with pleaſure, in a very few days, the ſore take a different figure. Hollow ſinuſes will become firm fleſh, and a laudable pus will ſucceed to a thin, ſharp ichor; the ſurface of the ſores will gradually leſſen, and health and appetite be reſtored.

Obſ. 12. A lady, about eight miles from this city, of a ſeemingly good conſtitution, and a little beyond forty, hurted the fore finger of her right hand, by locking a cellar-door. It ſwelled, became painful, and in fine formed matter. A gentleman of this city was ſent for, and laid it open; the ſore, however, never digeſted well, and

the

the hand was much ſwelled. To remedy this inflammation (ſo apprehended) ſhe was kept very low. But the 19th day, from the opening the ſore, ſhe fell into ſtrong convulſions, which were followed by a ſtupor and inſenſibility. I was then ſent for; and the cauſe of all this orgaſm was attributed to her having taken a ſmall bit of cheeſe, and a glaſs of wine and water after it the evening before. As I am a cloſe obſerver of nature, I eaſily ſaw, that ſuch a trifle could not account for the ſymptoms in queſtion. Upon opening the ſore, a yellow water diſcharged: the hand, fore arm, and arm were greatly ſwelled, and of a duſky-red color; and my probe could furrow up beyond the carpus. Never was there a fairer field for the knife! As the gentleman in attendance quitted on a call elſewhere, ſhe became my patient in conjunction with Dr. *O'Brien*, a phyſician of eminence of this city, who warmly entered into my views, for the patient's recovery. We had the hand, and fore-arm ſtuped, with a ſtrong decoction of the bitter herbs; and over the whole a ſtrong poultice of oat-meal, ſtale beer, and *Venice* treacle. Upon inquiry, I found ſhe had to this time

enjoyed

enjoyed good health, had a good appetite, and generally took two or three glaſſes of wine after dinner. But, from the coming of her ſurgeon, had been kept ſo low, to prevent inflammation (and by the bye, without it, no ſore can heal, as we have ſhewn in the ſecond paragraph of this work) that for 19 days before, ſhe never took more ſolid food than greaſy water, or chicken broath, and a bit of toaſt twice a day. This, with ſome latent bad humors, accounted for all the above ſymptoms, as well as a puking ſhe had on her. I had ſtrong broth well ſeaſoned, which I freely gave her, as well as toaſt and nutmeg, with a glaſs of claret now and then, likewiſe a new egg. As for the bark, in what ſhape ſoever ſhe took it, her ſtomach rejected it. The ſtupes and poultices, as well as hot dreſſings to the ſores, were continued morning and evening. About the third day, the ſwelling was ſenſibly leſſened: a digeſted pus, for the firſt time, appeared: her ſtomach became ſettled, and her ſleep calm. The fifth day I quitted her, being out of all danger; and, in ſome time after, her ſore was well, and to this day ſhe enjoys good health.

Obſ.

Obſ. 13. In *January*, 1749, ſoon after my return from *Paris*, the wife of Mr. *Walter*, a chymiſt, in *Ruſſel-ſtreet*, *Covent-garden*, where I lodged, of a delicate frame, by accident cut her thumb in the fleſhly part, but ſo ſlightly, as ſcarce to draw blood. She took no notice of it, 'till the day after, when it ſwelled, and became very painful. A common plaiſter was applied to it, but the pain and ſwelling increaſed. The 12th, being the fourth day of the accident, I was prayed to look at it. The thumb was conſiderably ſwelled, and, by the touch, ſeemed as if matter was lodged there. However, to be more certain, I ordered a ſtrong maturative poultice, with roaſted onions; and, the next morning, with a lancet opened this tumor in the moſt prominent part; but no matter diſcharged, but a few drops of a bloody ſanies. I dreſſed it up with a ſoft digeſtive. The pain of the part increaſed, and the ſwelling advanced towards the wriſt the 14th. The following day, a putrid ſmell was in the chamber: the ſore looked diſcolored; and ſeveral phlectinæ about the parts, even to the fore-arm. The 16th, a couple of gentlemen of eminence

minence were consulted; and the symptoms seemed so pressing, that they imagined an amputation of the fore-arm necessary to save the patient. Though this was the first case of the kind I had seen, and could not recollect any case similar to it; yet I observed to these gentlemen, that the progress of this sore, carefully considered, seemed to require a different treatment. That the affair in itself, scarce worth notice, becoming so troublesome before the opening; and so dangerous after, seemed to argue a very bad disposition of the juices; that amputation could not be said to remove this idiosincrasy, since the same disposition of blood that could make a scratch become of that consequence, must necessarily produce more speedy and fatal effects in an amputation; and, for the same reasons, that even scarification should be omitted. Tho' this doctrine from a young man (not then 21) did not meet with approbation, yet my opinion, as the more gentle, was followed.----Upon inquiry, I found her in general of a bad habit of body, and not regular in her menstrual purgations. I, therefore, ordered some doses of purging pills; *e pil. ruff.*, *calomel.*, *sal. mar-*

tis, &c. and, the intervening days, half a drachm of the bark, four times a day, in a little port and water. I alſo ordered a decoction of the bitter diſcutient herbs, with which the hand and arm were to be ſtuped twice a day, and a poultice of oatmeal and ſtale beer to the arm. The ſore was alſo dreſt with lint and brandy, and the compreſſes, *&c.* wet in brandy. The 20th the fœtor was gone, the parts began to look better, and ſhe recovered an appetite ſhe had not for ſome time. She ſtill purſued her pills and the bark; taking of the former ſometimes three and four of a night, ſo as to open her three or four times. The 24h the bark was omitted, and ſhe took, for ſome little time longer, her pills twice a week. The ſwelling and diſcoloration of the ſore were greatly leſſened; ſo as by the 8th of *February* there was no appearance of a ſore; and ſhe has ſince enjoyed a ſtate of health ſhe had not for ſome years, as ſhe aſſured me in 1753, when I again ſaw her.

Obſ. 14. *Nov.* 6, 1750, the only daughter of a wealthy ſhopkeeper of this city, a child of about ſix years of age, playing at a table by candle-light, the blaze of the candle

candle caught the little border of her cap, which the boy perceiving ſtoped the blaze; but ſo as a little bliſter appeared on her temple, not quite ſo big as a ſilver-penny. This was immediately rubbed with ſweet oil, and no further noticed. However, the day following it became more angry and painful; and they then ſent the child to Mr. *Gould*, an eminent ſurgeon of this city, and a humane, honeſt man: he was at this time in the gout, and directed ſuch things as he thought proper. But the ſore increaſing, and growing more angry and painful, and he incapable by his diſorder of giving it the proper attention, recommended me to be ſent for. The 16th I had the above relation from the parents, moſt of which I heard before. At this time the ſore had eat deep into the temple, and ſpread down the cheek, and to the lower jaw of the affected part (the left ſide.) The parts looked pale, and a diſagreeable fœtor iſſued forth. I ordered a cerate made of ſperma-ceti, white wax, oil of almonds, and ſugar of lead to apply to the part; and a fomentation of the bitter herbs, with *ſal. ammoniac* to bathe the ſore, very hot, twice a day. Nevertheleſs, the ſore ſpread,

and the pain increaſed, ſo that a great part of the head was as deeply attacked as the face. Finding affairs in this condition, the 20th I deſired a conſultation not of ſurgeons, but phyſicians; and Dr. *Anketill*, a phyſician of great worth and honor was ſent for. We ordered *gr.* 1-half of calomel, with a little lenitive electuary at night, and worked off next day with tincture of rhubarb. This purged ſeven times, with ſome griping. I continued the ſtupes, but inſtead of the cerate applied only lint and brandy to the ſores. The 22d we repeated the pill and tincture; and again the 24th, with viſible advantages to the patient, the progreſs of the ſore leſſening. The 26th ſhe took a ſtrong decoction of the bark, with cinnamon-water, and *elix.* of *vitriol*, a wine glaſs full every three hours. This ſeemed to agree with her ſtomach well, and the ſore ſeemed to thrive from it; but as it was very much extended, required a great while to heal. The danger of death, which was very juſtly apprehended, being pretty well over, and the ſore making ſtrong advances to heal, inſtead of the above, we directed a ſtrong decoction of *rad. ſarſaparill.*, and the cortex, with the *tinct. ſtyptic.*,

tic., and two drachms of the *æthiops* mineral to be divided in eighteen papers. She took a paper morning and evening, in a little balſamic ſyrrup, and about four ounces of the decoction after each doſe, for ſix days; and the ſeventh a purge. This ſhe continued conſtantly 'till the 22d, when finding the juices in a kind diſpoſition, and that her ſtomach began to loath medicines, we rejected the further uſe of internals, and continued dreſſing the ſore as before. However, it was not completely healed before the middle of *January* following. So great a ravage did this trifling ſore produce, for want of balſamic juices to aſſiſt nature!

Obſ. 15. *Auguſt* 10, 1754, a gentleman of conſiderable fortune near this city, aged about 40, by an unlucky accident broke the tibia very near the knee, a place which one could hardly ſuſpect. In about two hours after, the accident (at nine at night) he received proper aſſiſtance from Surgeon *Vandelure*, a gentleman of great abilities and humanity, of this city. But, as he complained violently in the night of pain, I was called about four next morning to him, where I arrived before ſeven. Upon open-

opening the juncks, we perceived below the bandage, in the inſide of the leg, a large black, watery bliſter about the breadth of a crown; and ſeeing the limb a little ſwelled, and knowing the patient not to be in the beſt habit of body, without further inquiry, we immediately cut through all the bandages, and found a large blackneſs to the breadth of three inches from the fracture to the knee. A ſtrong decoction of the bitter herbs, with *ſal. ammoniac*, was inſtantly prepared, with which the limb was conſtantly ſtuped for about half an hour, and then a poultice of oatmeal and ſtale beer, with the *theriaca*, was applied, the parts being firſt rubbed with *ſp. ſal. ammoniac*. Upon examining the parts, in an hour after, we perceived the blackneſs and phlectinæ to become more extended: theſe already cut, again replete with a limpid, bloody fluid; and many new ones, from the knee half way down the leg. Finding things in this tickliſh ſituation, and the party a man of conſiderable fortune, we agreed to call for help immediately; and Drs. *Vereker* and *Martin* were ſent for. By the meſſengers, we ſent for ſome powders of the *cort. peruvian.* and

pulv.

pulv. contrayrv. comp. as alſo for a mixture of *mel. ægyptiac.*, *ſp. vini camph.*, and *ſp. ſal. ammon.*, and a large bottle of this laſt ſeparate. From this time to eleven o'clock (at which time theſe gentlemen arrived) we ſtuped once an hour, and, at each time, found every where watery bliſters; not only thoſe already cut renewed, but new ones from the knee to the ſole of the foot; the parts likewiſe black and inſenſible. And tho' I ſaw the neceſſity of deep ſcarifications, yet, as we expected theſe gentlemen every ſecond of time, we deferred them 'till they came----Contemplate the the amazing progreſs of this caſe! His leg broke about ſeven o'clock at night; reduced at nine; at ſeven next morning two large watery, black bliſters formed, tho' the band was far from being too tight. From this to eleven, though the limb, free from any ſtricture, and the parts conſtantly fomented, and the bliſters always cut, and dreſſed with ſpirits, yet again filling every half hour; and ſo many new ones forming, that from the knee to the ankle and foot ſeemed a complete ſphacelus! About half an hour after eleven, I ſcarified pretty deep from the knee to the ankle, both

both within and without the leg, and ſcarce any blood followed. Theſe we dreſſed with the mixture of *mel. ægyptiac.*, *ſp. vin. camph.*, &c. already mentioned. We continued the ſtupes every hour; and, beſides the above, the ſores were wet with *ſp. ſal. ammoniac.* He took of the powders every hour in a little claret and water. About four he complained, as if the leg was of an immenſe weight. About this time, upon conſultation it was agreed to take off the limb above the knee next morning; and every thing was accordingly prepared for that purpoſe. About ſeven the ſame thing was again debated; and I made my objections to this reſolution. I obſerved, that a fracture of the tibia alone, tho' a complicated one, could never ſufficiently account for ſo many, and ſudden uncommon ſymptoms. Theſe then muſt be reſolved into the bad habit of body of the patient; and that of courſe the expedient propoſed could bring no aſſiſtance to that. Therefore, I apprehended the only chance (and a very ſmall one it appeared to us) left, was to purſue the method already begun. This diſcourſe ſeemed to carry its weight for the preſent; but the determination

nation was deferred 'till morning. He raved moſt of the night; and about eight next morning we were ſuddenly called in, he being ſeized with ſtrong convulſions, in which he continued for about half an hour. He came out of them very weak, but ſenſible; and the blackneſs was now ſpread above the rotula, but the bliſters did not go higher than the knee. Upon a third conſultation, the operation was abſolutely rejected as uſeleſs; and we were unanimouſly of opinion, that he could not live beyond ten o'clock next day. That evening we were diſcharged; but as it was neceſſary to have ſome one to attend to the ſores, and keep them in ſome order, that office was reſerved for Mr. *Vandelure*, his friend. That night paſſed worſe than the preceding; and, preciſely at eight o'clock next morning, the ſame convulſions ſeized him, and he was judged in ſuch a way that an expreſs went off for a coffin, *&c.* However, in about half an hour, he came to himſelf, but very low. About ten, the convulſions attacked him with double violence. About eleven, he ſeemed to recover from this kind of reverie; grew very warm, and ſeemed inclined to ſweat, which was

encouraged by plentiful draughts of warm wine whey. After twelve, from a profuſe ſweat he fell into a ſound ſleep, which continued 'till ſix in the evening. He awoke much refreſhed. The blackneſs ſtill continued, but the bliſters were not ſo frequent. The 13th, he ſeemed much better, and his leg and thigh, as he expreſſed it, ſeemed as if aſleep. That night he complained of a pain below the fracture; which increaſed the 14th and 15th, and the blackneſs and ſwelling began viſibly to leſſen; the 16th, it ſeemed as if matter was forming, on the out-ſide, and near the calf of the leg, to which ſtrong maturative poultices were applied. That day, Mr. *Gould* was ſent for; and the next morning this tumor was laid open, from which an amazing quantity of a foul, greeniſh ſtuff, was diſcharged. This was kept running for ſome days; and then, difficultly enough, healed. But it was above ſix months after, before he was able to quit his room; and to this day (*January* 1760) he walks with a pair of ſticks.

This caſe made great noiſe over this city and county; and people were hardy enough to cenſure the ſurgeons and phyſicians

ficians who first attended him. It was said, that what we took for a mortification, was only a blackness, the consequence of a contusion; and that we despaired of him at a time when he was in no danger. But, from his case fairly stated, which numbers can attest, it must appear, that nothing was omitted, which skill could furnish, to save his life; and that if, from reiterated experiences, I had not so stifly opposed the amputation, we should never suffer reproach, nor our characters be called in question for passing too hasty a sentence; nor should I, in particular, bear a double portion of it, who merited a very different return.

XXI. Sometimes a slight hurt, * though ever so carefully dressed, from a coldness (only) in the constitution, shall become extremely troublesome. In two or three days, a thick, black, circumscribed buff, shall cover the sore. This many surgeons dress with præcipitate, and sharp dressings of this kind, and are surprized to see, after great trouble and time, the sore, if not worse, at least no way better. This is generally called, a dry gangrene, because

* This section, and the annexed cases, treat of the dry gangrene, properly connected to this chapter.

no matter discharges. The daily experience, of dangerous consequences, at best a tedious and painful cure, profitable only to the surgeon, should sufficiently explode a method of cure, not supported by reason, or experience. The safest and most expeditious way of curing these sores, is, by means of stupes of bitter herbs, soft digestives to the sore, to help throwing off the slough, and poultices of the warm kind, to further the same intention. But if the throwing off the eschar should be too tedious, and for fear of any ravages being committed underneath, in such case, a crucial incision may be made thro' it, as is practised after the application of a caustic. By this means the heat of your applications will sooner reach the quick, and the sore speedier heal. But the surgeon must observe, in these incisions, never to engage the circumjacent sound flesh, and even seldom to draw blood from the bottom of the sore. By the method described, in the beginning of this paragraph, I have seen bad consequences ensue; and about two years ago I remember a gentleman, of this city, of my acquaintance, by a slight hurt in the leg, which speedily formed a buff, to be kept confined for three months, and

to

to ſuffer a world of pain and miſery, beſides large doſes of the bark, and ſome touches of the knife (an inſtrument too often more uſeful to the ſurgeon than the patient) before he got well. I ſhall juſt preſent a couple of inſtances, as good as two hundred, of the latter method of practice.

Obſ. 15. In the ſummer of 1761, a gentleman of great worth and honor, of this city, at ſome diſtance off, happened to hurt his right leg; but ſo ſlightly, as that the ſkin was ſcarce broke: a brandy cloth was immediately applied, which gave great pain. Next day, the part was red and inflamed, and a bit of plaiſter was laid on: it nevertheleſs grew more and more troubleſome; and, in ſome time after, I was ſent for. A black eſchar, or buff, exceeding a crown piece, covered the ſore; and the ſurrounding ſkin looked angry and red. I had ſtupes, of the diſcuſcient kind, immediately applied hot; dreſſed the part with a warm digeſtive *ex. ung. baſilic., flav. & ol. terebinthin*, and over the whole, a poultice of half boiled flummery. Next morning, and again at night, it was ſo dreſſed, and the inflammation of the integuments

was

was conſiderably abated, but no ſign of the ſeparation of the eſchar. The better to promote this end, I directed, that he ſhould take four or five glaſſes extraordinary of wine, every day, after dinner (for he was very temperate) and applied over the dreſſings a poultice of oatmeal, beer, and Venice treacle, inſtead of the flummery. For eight days, very little ſign of a ſeparation. I then made a crucial inciſion thro' this buff *only*, and dreſſed with the digeſtive hot, after the ſtupes, and then applied the oatmeal poultice. In about four days more, the eſchar ſeparated; the ſore was then dreſſed ſeldomer, treated as any other common ſore, and was ſoon after healed.

Obſ. 16. A young gentleman, of a delicate frame, ſcalded his leg with boiling water; but whether owing to improper dreſſings, or conſtitution, or both, the leg grew worſe; and, in ſome days, was covered with a black, hard, and leather-like buff when I was ſent for. The ſtupes, dreſſings and poultice, already deſcribed, were immediately directed; and that night he took a mercurial pill, which operated next day five or ſix times. In three nights after the pill was repeated; and this was

ſucceeded

ſucceeded by a decoction of the bark, on cinnamon water, with ſyrup of oranges, which lay well on his ſtomach. The eſchar nevertheleſs ſhewed little tendency to a ſeparation, tho' it did not ſpread. At the end of eight days, I ſcarified the diſeaſed parts, and the eſchar ſoon after ſeparated, and the ſore was after dreſſed like any common one, and was ſoon well. In theſe caſes, the digeſtive ſhould be of the ſoft kind, unmixed with præcipitate, or any kind of catheretics; nor ſhould the ſurgeon be over ſollicitous by probe, or forceps, to haſten the ſeparation; as this not only often retards the works of nature, but is frequently the cauſe of a new buff: for, by the ſeparation's being gradual, new fleſh will inſenſibly fill up, and help to throw off the eſchar, and the ſore be the ſooner healed.

CHAP.

CHAP. VI.

Of the Want of the Nutritious and Balſamic Qualities of the Blood and Juices, the Source of all the preceding Species of Gangrene.

XXII. THO' no tendency to a mortification appears thro' this claſs; yet, as it is the firſt alteration that the ſolids and fluids muſt undergo, before they can arrive to the different ſtages of malignity already explained, we thought a particular chapter on this head extremely neceſſary, both to confirm the theory and practice already laid down, as well as to ſhew the different ſtages of the univerſal gangrene, from its ſource to its higheſt degree of infection. Perſons of this claſs are in general of a cold, chilly conſtitution, and the ſlighteſt hurt, is with difficulty healed, tho' it ſeldom grows worſe. People of ſcrophulous habits of body, are generally liable to this complaint, as well as people under the firſt *criterion*, though otherwiſe generally healthy. But becauſe nothing can clearer illuſtrate this, than obſervation, I have, out of a good number of caſes, ſelected theſe following.

Obſ.

Obſ. 17. Mr. *W*------, a young gentleman of this city, aged about 25, had in the beginning of *May* 1751, an inguinal tumor, which increaſed with very little pain. He ſhewed it to me the 10th, and it appeared large, and to the touch full of matter, tho' no diſcoloration of the ſkin attended it. I was pretty well convinced it was not venereal; though, if it were, the conſequences of it could not be reconciled to any thing of that ſort. The 11th I gave it a large opening, and abundance of matter iſſued from the aperture; the ſucceeding days, every thing went on well, except that there was no appearance of inflammation or foreneſs in the part. By the 18th the ſore looked worſe, and ſinuſes began to form, which I opened, and ordered inwardly the alterative mercurial pill, with a ſtrong decoction of the guajaicum and ſarſa, *&c.* He took two of theſe pills night and morning, with about half a pint of the woods; and in order to raiſe an inflammation in the ſore, I ordered a warm digeſtive, with the precipitate, in which doſſils were dipt warm, and over the plaiſter a poultice of oatmeal and ſtale

beer was applied night and morning. By the 30th the ſore was rather worſe; no pain, no inflammation, no tendency to heal; and wherever I put my probe, I could eaſily raiſe up the corpus adipoſum! Conceiving this ſtrange inſenſibility to proceed from too great a colliquation of the humors, I forbid the uſe of mercury, and ordered an electuary of the cortex, with *pulv. contrayervæ compoſit.*, candied nutmegs, *&c.* to be taken the bigneſs of a nutmeg three times a day, taking a glaſs of generous claret after each doſe. I directed his meats rather roaſted, always freſh, and pretty well ſeaſoned; and to take better than a pint of wine after dinner. The diſcutient herbs, extremely hot, were applied at each dreſſing; but upon this occaſion, and ever ſince, where I found them neceſſary, I had the liquor ſtrained off, and put hot in ſheep's bladders tied, and ſo applied to the part. By this means your ſtupes are always hot, comfortable, and no apprehenſion of getting cold after them. But to return. Will it be believed? In ſpite of this regimen and new courſe of medicines, we gained nothing on the ſore! His ſtomach was good,

good, as well as his ſpirits: he ſlept well, and had all the functions of nature! The month of *June* paſſed, and he ſtill carefully dreſſed, and yet to very little viſible advantage, ſave that the ſore did not grow worſe. In the beginning of *July* I directed ſtrong port to be drank inſtead of claret, and ſometimes punch by way of ſtimulus, and yet to little purpoſe; the edges and ſides of the ſore no more altered in color than the reſt of the ſkin; and the ſinus's that were opened rather worſe, which was no encouragement to increaſe the cutting, tho' there ſeemed to be more need of it. But by reaſon of the inſenſibility, and little diſpoſition in the parts already opened, there could be little inducement to attempt new wounds. In a word, *July* and *Auguſt* paſſed with but little ſign of amendment; and he ſet off for *Liverpool*, in his way to *Guiney*, in the middle of *September* following, tho' much better than he had been, yet the ſore not half healed, which I told him, I hoped the heat of that climate would effect. This gentleman, tho' ſeemingly hearty and full of ſpirits, yet had always a great paleneſs in his countenance. However, we muſt remark

this caſe, that the wound never ſeemed to grow very bad, ſo as to apprehend a mortification. The lips and ſides of it were of the ſame color as the reſt of the ſkin; but the extreme inſenſibility, and little tendency to heal in it, were circumſtances very remarkable. But when I ſay inſenſibility, I would not be underſtood to mean, that the ſore had no feeling far from it. He always complained of pain, on the uſe of the precipitate, and ſeemed very ſenſible of the heat of the ſtupes. But tho' I exerted what knowledge I had to ſerve him, as I think this honeſt ſtate of his caſe muſt certify; yet I had the mortification to find myſelf cenſured, and even by thoſe who ſhould know better. So neceſſary is ſucceſs, or a good conſtitution, to gain applauſe.

Obſ. 18. *May* 12, 1759, I was ſent for about 20 miles diſtant from this city, to examine a gentleman's child about ſix years old, who had a large tumor of the incyſted kind in the middle of the right thigh, between the ſemi-nervoſus and biceps muſcles. Three other children, who were under preparations for inoculation, had, at different times, received ſlight ſcratches, which,

which, at this time, were rather worſe than when the accidents firſt happened. In particular, a child about five, received a ſlight hurt in the temple about a year before, which, though with time and difficulty healed, yet left a tumor behind that gradually increaſed, and to the touch ſeemed replete with ſome fluid, on which they kept a mercurial plaiſter. All theſe appearances were ſmall inducements to perform an operation on the child in queſtion; however, upon ſtrong ſolicitations, I opened the integuments, and, though the tumor lay very deep, yet I fairly extracted both matter and cyſt. The cavity was filled with looſe lint, and covered by the gum-plaiſter, over which I applied a compreſs wet in brandy, with proper bandage. As my ſtay muſt be attended with a good deal of expence to the gentleman, who had many children; and a kind of ſurgeon being retained in the houſe, I left with him my directions in writing. I ordered the bottom of the ſore to be dreſſed hot, with a digeſtive, *ex ung. e gum. elemi, præcipitat., rubr., & ol. terebinth.*, the reſt of the cavity to be filled with dry lint, and the whole retained by the gum-plaiſter ſpread on linen. My intent in this was to draw

draw a proper degree of inflammation, which the parts much wanted, in order for incarnation. The 25th I was again, by letter, requeſted to viſit my patient. I found the diſcharge very inconſiderable, but no appearances of inflammation, or tendency to heal in the ſore: on the contrary, my probe found a looſe ſpace, between the interſtices of the muſcles, to furrow in! As I ſuſpected, beſides a coldneſs of the juices, ſome degree of ſcorbutic, or ſcrophulus humor might be in the blood, I ordered powders of levigated crude antimony (an excellent medicine in proper hands) and *æthiops mineral* to be taken morning and evening, with a glaſs of a ſtrong decoction of ſarſa and the bark, with *elix. vitriol*, for ſix days ſucceſſively, and the ſeventh, a light doſe of rhubarb; and this courſe to be continued for about ſix weeks. I alſo directed the ſore to be ſtuped, at every dreſſing, with a decoction of bitter herbs, and a poultice of oatmeal over the dreſſings. By the middle of the following month the ſore ſeemed to be in the ſame condition, though I directed his nouriſhment pretty freely; ſuch as ſtrong broth, a freſh egg, *&c.* and always a glaſs

of

of claret every day. In a word, about the latter end of *June* he took the ſmall-pox, and died the 12th day. The other children had it in a moſt favourable degree.

Nothing diſcouraged by this attempt, in the middle of *July* he wrote me a preſſing letter by the ſurgeon in queſtion, requeſting I would come to ſee the other child, of whom he had ſpoke to me before; whoſe tumor was now ſo conſiderably augmented as to preſs upon the eye; with directions that he ſhould not quit town without me. Accordingly,

Obſ. 19. *July* 20th, I viſited the child in queſtion. The tumor had conſiderably augmented ſince I ſaw it before, and attended with pain. I told the father that this tumor was of the incyſted kind alſo; that I was confident the operation could be ſafely performed, nothing being to be apprehended but the diviſion of a ramification of the temporal artery; but that the little diſpoſition I perceived to heal in any of his children, and the poor ſucceſs in our former attempt were ſuch diſcouragement, that I chooſe to decline it. However, at his earneſt entreaty, performed it: the matter laudable, and the cyſtis quite extracted.

ed. The directions for dreſſings, *&c.* with the medicines, were pretty much the ſame as in our former caſe.

I again viſited the child the 29th, and every thing ſeemed in a thriving way, the ſore almoſt healed, except a little, ſoft, white ſpeck in the middle. But, in three days after, it diſcharged a good deal of matter, and the cavity became as large as the firſt day. In ſome days after, it was again brought to the ſame pitch of perfection, and again burſt forth. The 6th of *Auguſt*, I found the ſore as open as immediately after the operation, and hollow round about. I told the father, in another patient I ſhould be apt to lay open theſe ſinuſes, but I would do no more here, for fear of making bad worſe: recommended the ſame dreſſings, covered with a plaiſter of diachilon with gums, and the mercurial plaiſter mixt. To continue the ſweetening woods alone, for fear the mineral would divide the globules of the blood to much; and to give the child a glaſs of claret every day, and now and then ſome ſeaſoned broths, to animate and warm the blood and juices. In a word, I am now tranſcribing this, with other caſes

the

the 12th of *February* 1760, and the ſore is not yet healed!

This gentleman told me, that a child of his brother's had a ſmall ſore of its upper lip, which was attended by an eminent ſurgeon: that it grew black and diſcolored, was ſcarified, and grew worſe. That a ſecond was called in; and as the mortification and ſore ſpread, the ſcarifications followed.---*Paſſibus æquis.* In fine, the whole face and noſe, in a very few days, became a very deplorable ſight, and the child died ſoon after.

XXIII. Perhaps there is no part of the healing art more inſtructive and uſeful to mankind, than an honeſt recital of unſucceſsful caſes, well claſſed. The *clear* part of our practice (to adopt the painter's phraſe) is oftner owing to the bounty of nature and conſtitution, than to our art: the *obſcure* is moſtly where nature and conſtitution inflexibly oppoſe art. The monuments left of this, ſerve our ſucceſſors, as incentives, to explore the cauſes of theſe defects of nature, and to endeavour to remedy them. But few ſurgeons have the candor and courage to

declare their defeats; though the great *Hippocrates* has ſet us the example, in nobly acknowledging that he once miſtook one of the ſutures of the ſkull for a fracture of the cranium! I have in the above chapters given a fair recital of unſucceſsful practice, and I hope a profitable one to ſurgeons; ſince it proves, in the cleareſt manner, the different tranſitions of the Univerſal Gangrene, from its firſt out-lines to its higheſt degree of malignity: and even through the whole, particularly in the preſent chapter, tho' I have ſelected only ſuch caſes as failed of ſucceſs, carefully ſuppreſſing any other; yet the ſurgeon will ſee, and muſt acknowledge, that in the treatment of theſe I have carefully deſcribed the only rational method of bringing moſt curable caſes of this claſs to that deſired point.

CHAP.

CHAP. VII.

Of the Gangrene proceeding from an Inflammatory State of Blood.

Respectfully Inscribed to

ROBERT ROBINSON, *M. D.*

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XXIV. IN this case, the blood being very active and warm, and the parts endued with an high degree of sensibility, any violent hurt soon determines more blood here than the vessels can contain, or conveniently return. Inflammation becomes the immediate consequence of this obstruction; which, if not soon relieved by profuse and repeated evacuations, abscess or Gangrene follow; and from this last the most melancholy apprehensions are to be expected.

Obs. 20. This state of blood is, in some constitutions, so fiery, that in a gentleman of my acquaintance, tho' about 40 years old, from a slight hurt in the nose, so violent an inflammation and fever arose,

that three profuſe bleedings in 24 hours, with nitrous and other antiphlogiſtic medicines, were ſcarce ſufficient to reduce it, and to bring the ſore to an healing ſtate: had I not made uſe of theſe means ſo ſpeedily, it is eaſy to foreſee how this ſore, trifling as it was, would end.

Obſ. 21. Another gentleman I alſo attended, who, from a ſlight hurt on the leg's being dreſſed with brandy cloths, became highly feveriſh, the leg greatly inflammed, and the lips ſwelled, diſtended, and diſcolored. I immediately had a good quantity of blood taken from his arm, the leg fomented with ſtupes of the emolient kind, to which new milk was added, not *very hot*, but rather *moderately warm*; the ſore dreſſed with baſilicon, ſoftened with oil of roſes, ſpread pretty thick on lint; the leg chaffed with freſh ſweet oil, and a poultice of half-boiled flummery over the whole. An injection was thrown in ſoon after, and he took every hour a paper of ſal prunel. Next day more blood was drawn, and the ſtupe, dreſſing, embrocation, and poultice repeated. The pulſe continuing full and hard, determined me to take more blood that night. Next morning the

the fever and thirſt were greatly abated, the ſwelling and inflammation of the leg much leſſened, the ſore diſcharged a good deal of matter, and he had ſome ſleep. I now directed the ſtupes pretty hot, and inſtead of flummery, had a poultice made of oatmeal and water applied. He ſtill continued his powders of nitre; and inſtead of a very ſevere reſtriction, in point of diet, I ordered a freer indulgence in this article. The ſore ſoon became ſimple, and like ſuch ſpeedily healed.

Obſ. 22. A female ſervant to a family of this city hurt her hand by the point of a nail, near the *ligamentum annulare*, but very ſlightly: the pain, nevertheleſs, that ſucceeded was very exquiſite, attended with ſhriekings and convulſions. In this ſituation I was requeſted to viſit her. Finding the pulſe very full and quick, I immediately had blood drawn from her profuſely, and over the dreſſings of this trifling ſore I applied a poultice of flummery. She ſeemed much eaſier; but in about two hours after, the pains and ſhrieking returned, and ſhe was again bled on the ſpot: ſhe took phyſic next day, was kept low for two or three

days

days more, and was ſpeedily well. The ſymptoms were here ſo rapid, that, in a few hours, a moſt dreadful inflammation muſt have followed, the effects of which might have been fatal, but for theſe very ſeaſonable evacuations.

Obſ. 23. Some years ago Mr. W——, an apothecary of this city, of a delicate conſtitution, burnt his hand by ſome oil of turpentine which he was uſing, in making Venice turpentine, catching fire. Tho' the parts were but ſlightly hurt, being but two ſmall bliſters on the back of the hand, yet the pain proceeding from them was highly exquiſite. In a few moments from the accident, I found him raging like a mad man: he would juſt ſhew me his hand, and before I could well ſee the cauſe of this unuſual orgaſm, he'd fly away, ſtamp round the floor, and throw himſelf on the ground. I was for a little while at a loſs what to do, he every now and then applying to me for relief, and preſently flying off. I at length determined to bleed him, tho' on a leſs preſſing occaſion it would appear (by the ſores) highly ridiculous. The veins were turgid enough already, and the blood ſprung out with

with great force; ſcarce were three ounces drawn when he grew eaſier; and upon taking about twelve he grew quite cool, begged to lie on the bed, where he ſoon fell into a profound ſleep, out of which he did not awake for ſome hours, and in a few days after his ſores healed kindly.

XXV. Whilſt moſt writers agree that Gangrene is the conſequence of every violent inflammation, that does not by remedies diſperſe, or form abſceſs; and that moſt Gangrenes proceed from this cauſe, it appears demonſtrable from what has been ſaid, and from what ſhall hereafter be advanced, that Gangrenes of this claſs bear but a very ſmall proportion to the general run of mortifications. Of conſequence to reſolve every kind of Gangrene into an inflammatory ſtate of blood, is not only falſe in theory, but highly dangerous in practice. Nor is every ſore, or mortified part, attended with great pain and a quick pulſe, to be deemed to owe its riſe merely to an inflammatory ſtate of blood, ſince both theſe ſymptoms attend mortifications proceeding from a cancerous caſe, in which bleeding is not indicated. But where inflammation, pain and fever, ſoon

follow

follow a ſlight hurt, or accompany it, there, and there only, all the evacuations already deſcribed become neceſſary; and when theſe diſcharges are omitted, and that a Gangrene ſupervenes, this *only* may be deemed a mortification from an inflammatory ſtate of blood.

XXVI. Having thus deſcribed the cauſes and nature of a Gangrene, cauſed *only* by an inflammatory ſtate of blood, and the means of preventing this effect, when timely taken, we now proceed to deſcribe the means of help, where the mortification is already eſtabliſhed. As nature is, in ſome meaſure, eaſed of the violent orgaſm of the blood, by the mortified part's receiving and keeping (not returning) the more active parts of the blood, evacuations are now to be uſed with great caution. If violent pain and fever ſtill ſubſiſt, bleeding and antiphlogiſtics are certainly the firſt indication; if not, they muſt be uſed more ſparingly. But in either caſe, ſcarifications (and they profound) muſt be firſt uſed to the upper part of the ſore: ſtupes of the diſcutient or emolient kind ſhould alſo be applied, either very hot, or moderately warm, according

cording to the ſymptoms: that is, if the ſore is attended with high inflammation and pain, they ſhould be but warm, and the dreſſing ſoft and balſamic, in order gently to relax and reſtore a freer circulation; but if the contrary, the ſtupes muſt be very active and hot, and the dreſſings of the warming nature. If the patient be low, warm cordials, nouriſhing diet, and the bark, muſt be often adminiſtered; and if it ſhall appear, in ſome days after, that nature ſhews no inclination to reſtore any kind of circulation here, but that ſtill a digeſted pus iſſues from the ſcarified parts, or that they heal kindly; in this caſe there is all the reaſon imaginable to think that amputation will be attended with ſucceſs. But if, on the contrary, the patient is faint and low, the ſcarified parts, inſtead of healing, or diſcharging good pus, grow more black, and that the ſound parts contiguous to the inciſions ſhew a tendency to mortification; inſtead of attempting to cut off the limb, you muſt repeat your inciſions, your ſtupes, and poultices, all of the moſt active and ſtimulating kind. *Nor ever think to amputate, till the mortification be-*

comes circumſcribed. It is true, if it ſtill ſpreads, the patient may die, in ſpite to all our endeavours; but it is alſo moſt certain, that by *amputating, in this ſituation, you make it impoſſible for him to live.* In the firſt caſe, by ſtill purſuing the tract deſcribed, it may, *poſſibly*, become fix'd to ſome part; in the latter, tho' nature might poſſibly effect it, yet by too haſty an operation, ſhe is abſolutely prevented.

Obſ. 24. A poor man came recommended, ſome years ago, to the late ſurgeon Gould, of this city, a gentleman of great merit in his profeſſion, and whoſe humanity and charity were every where conſpicuous. Some days before, in thatching a houſe, he fell from a ladder, and broke his right arm: a bone-ſetter ſoon after came; but whether the bands were, at firſt, too tight, which is not improbable, or that the great pain and extreme ſenſibility might draw a greater flux of humours, or both, the hand and fore arm ſwelled very much, and the pain he was in was very great. No attempt being made to relax the bandages, or relieve the inflammation by bleedings and other evacuations, a numbneſs and inſenſibility gradually

gradually ſucceeded to the pain and inflammation. The parts became of a duſky red, and then black, with watery bliſters, and a complete ſphacelus was ſoon after formed. Being ill of the gout, he requeſted my attendance immediately; and on conſultation with a couple of military ſurgeons, amputation was agreed upon, and directly performed by me, in the preſence of theſe gentlemen. Tho' the limb was taken off two inches above the diſcolored parts, in the ſound fleſh, yet not a ſingle drop of blood launched from any of the arteries, on relaxing the tourniquet. The mortification ſoon after gained his ſhoulder; and in about ſix hours, from the operation, he died. Before the operation his pulſes were pretty moderate, he ſpoke diſtinctly, and walked about!

XXVII. As ſoon as a mortification becomes formed in a limb, the firſt intention of moſt ſurgeons is to amputate. Indeed the almoſt general ill ſucceſs attending haſty operations of this kind, one ſhould imagine, ought to deter us in ſucceeding caſes: the fact is, nevertheleſs, otherwiſe. A very great inducement with

gentlemen in ſuch circumſtances is, I am perſuaded, a kind of certainty of the patient's death, in either caſe; and the fear of cenſure, in caſe he ſhould die without any mutilation. But both experience and reflection will convince us, that no time is ſo improper for ſuch an extremity, as at the very inſtant of the mortification's forming; becauſe the blood and ſpirits are in too great a ferment, and nature has not yet depoſited all the load of oppreſſion. But if, inſtead of this, we make uſe of profound inciſions, diſcutient fomentations, warm poultices and cordials, as already directed (XXVI.) we ſhall find the greateſt advantage to the patient, as well as to our own character. If, nevertheleſs, theſe be attended with no ſenſible advantage, is it not more humane to endeavour to reconcile the patient to his fate, and to make the proper uſe of the ſmall portion of time, by the author of nature allotted to him, than by a cruel (I may ſay, at this time, an inhuman) operation, to hurry him out of the world, diſtracted by hopes and fears, and the aggravating apprehenſions which ſuch a method muſt neceſſarily throw him into?

Obſ.

Obſ. 25. Daniel Sheehan, about nineteen years old, of a warm temperature, fractured his leg. This caſe fell into the hands of a bone-ſetter, who applied a very tight bandage, and took little care to make any evacuations by bleeding, *&c.* The exquiſite pain and ſenſibility of the part was ſoon followed by mortification; and the total blackneſs of the extremities, with Phlectinæ *only*, firſt induced this wretch to cut away the bands. This was the ſeventh day from the accident. He was with great pain and difficulty removed from the country here the 18th. He had, at this time, a very quick pulſe, great pain, and ſo great a ſtench from the leg, as not to be ſupportable, but by covering it with ſtrong ſpirits. There was no more coheſion in the fractured parts, than if they had been but juſt broke, and completely black and ſphacelated to about two inches above the bandages; that is, to about four inches from the knee. He was then admitted into the hoſpital, the leg gently extended, and covered with a piece of linen conſtantly wet in brandy. Next day the ſtench was ſomewhat abated, his pulſe more moderate, and he got ſome

ſleep.

ſleep. This day the ſame proceſs was purſued, and he got the next night ſtill better. But as every motion gave a freſh irritation to the divided parts, and that it was judged abſolutely impoſſible to ſave the limb, it was taken off next morning, and he recovered, but after a very ſlow and tedious manner.

XXVIII. No inſtance can more ſtrongly prove the abſolute neceſſity of delaying amputation, in mortifications of this claſs, than the laſt recited caſe; eſpecially if contraſted to the one immediately preceding it. In fact, tho' the bands were intirely removed the ſeventh day, yet the pain continued with great violence till the fifteenth, when an incipient putrefaction firſt produced ſome eaſe. As this increaſed, the pain leſſened. But on removing him to town, the motion produced freſh pain. It is, nevertheleſs, very remarkable, that though the amputation was not performed for three days after his admiſſion into the hoſpital, yet that the ſtench greatly leſſened during this period, and his pulſe and reſt at the ſame time became quieter. Had my advice been followed, the operation would have been delayed

layed for ſome days longer; the upper part of the leg ſcarified; ſtupes and warm dreſſings applied to it, and the other ſymptoms relieved.----But this ſeemed ſtrange doctrine to the gentlemen preſent, who were pretty numerous; that the operation ſhould be delayed, where I acknowledged a complete ſphacelus, and at the ſame time admitted the abſolute impoſſibility of ſaving the limb by the delay!----My reaſons were, that the blood was not ſufficiently diſengaged from the effects of this accident; and certainly the event ſhewed I was a good deal right; and had it been my time of attendance on the hoſpital, no entreaty would have prevailed on me to alter my opinion. However, the ſtump healed with great difficulty; exuberant fleſh daily ſprouting up, and in ſeven weeks from the operation, there was very little advances towards healing, notwithſtanding a variety of applications for that purpoſe, as well as inward medicines. If the cure was with ſo much difficulty effected, tho' the operation followed ſo long after the mortification, what muſt have been the caſe, had it been performed as ſoon as the Gangrene appeared? It is

manifeſt

manifeſt it muſt have been followed by death, as happened in Obſ. 24th; and it is alſo demonſtrable, that delays in ſuch caſes are the only ſure means to give a chance for life. I am the more fond every where of expoſing my reaſons for practice, ſo oppoſite to the general method, and of ſo much conſequence to mankind, and to poſterity; as the ſtronger the conviction, the leſs the obſtacles to its eſtabliſhment.

Obſ. 26. Mr. R-----, a young gentleman of the county of Tipperary, happened to break his leg at about five miles from this city, which was ſoon after dreſſed by a bone-ſetter of the neighbourhood. The man being of a plethoric habit, and the bandages tight, a very great inflammation followed; which, for want of proper evacuations, and neglecting to relax the bands, brought on a violent ſwelling and diſcoloration of the extremity of the limb, with black watery bliſters, and an high fever, in three days from the accident. Early next morning I was ſent for, and without much heſitation, I with my ſciſſors cut thro' all the folds of the bandages; had the whole leg and foot well fomented with ſtupes of the bitter active kind; cut

all

all the bliſters, and made a good many longitudinal inciſions on the extremity of the leg, and on the foot. The leg was covered with a fine linen cloth doubled, and wet in brandy, and he immediately after bled, and powders of nitre given from time to time in his drink. As the pulſe was ſtill very full, he was again bled that night, the ſtupes again uſed, and the brandy cloth applied, with directions to have it moiſtened from time to time. Next morning, and again at night, the ſtupes, *&c.* were made uſe of, without the leg's being all this time reſtrained by any bandage. The third day the ſwelling was greatly abated, and the diſcoloration and fever viſibly leſſened. I this day applied the eighteen tailed bandage, but ſtill directed the uſe of the ſtupes morning and evening. The ſixth, finding the ſwelling quite gone, and the inciſions healed, after making a *gentle* extention, I applied the uſual apparatus for a common fracture. The man did well in the ordinary time, and his leg was exactly even.

CHAP. VIII.

Of a Species of Gangrene, ſubſequent to Phlebotomy.

ADRESSED TO

NATHANIEL BARRY, *M. D.*

Of the College of Phyſicians, Dublin, *the* King's Profeſſor *of* Surgery *and* Midwifry, *and* Phyſician General *to the* Army, *as a public Teſtimony of the great Reſpect and high Eſteem of the* AUTHOR.

XXIX. THE only accidents hitherto deſcribed to follow bleeding are, firſt, a ſlight inflammation, and ſometimes abſceſs, if the lancet be bad, though the patient ſafely bled; or, ſecondly, a violent one, often attended with alarming ſymptoms, if the *aponeuroſis* of the biceps muſcle be prick'd; or, thirdly, an *aneuryſm*, where the artery is wounded. That Gangrene and death ſhould follow bleeding with very little, if any degree of inflammation, is what has to this time paſſed unnoticed by writers: of courſe the cauſes and ſymptoms unknown. It is

true

true that *Dionis*, an excellent ſurgeon, and moſt diligent obſerver (*Cours des Operations de Chirurgie*, *p.* 680.) mentions in a curſory way two or three unhappy accidents of this kind; and it is to be remarked, that *M. La Faye*, in his curious and uſeful notes on this writer, in which every modern improvement and diſcovery in ſurgery is minutely detailed, makes not the leaſt comment on this intereſting paſſage, tho' he does on many others of leſs conſequence; an irrefragable proof, that it eſcaped the notice of our modern ſurgeons. Nor can I recollect any other author who has made the leaſt mention of ſuch accident.

XXX. In fact, in cachochemic habits of body, where the humors are ready to fall upon any part---*Quâ data porta ruunt!* ---if a hurt happens---ſuppoſe by pricking a tendon in bleeding---for want of ſufficient elaſticity in the parts; or a proper ſenſibility in the *genus nervoſum*, or both, it will not be diſpoſed to inflammation and abceſs, nor yet to diſperſe; but remains indolent and ſwells, with a ſlight reddiſh ſtreak, the length of the biceps muſcle, if in the arm. If this ſwelling

be neither a true *oedema*, nor yet an inflammatory one, attended with a quick pulſe, a little reflection will ſoon make us apprehenſive of the conſequences of it. For, in this ſtate of indolence, the diſorder inſenſibly gains ground: the arm ſwells, with a reddiſh ſtreak: the forearm becomes oedematous, cold and inſenſible; the tumefaction reaches the ſhoulder and ſides, and the patient ſoon after dies! And that accidents of this kind are far from being rare, the following caſes, that fell under my own immediate inſpection, will evince, beſides others I have ſince collected from ſome of my acquaintance.

Obſ. 27. In February 1759, I was ſent for to viſit a tenant of colonel Croker's, who had been bled a few days before in the right arm. The man, tho' of a robuſt conſtitution, ſeemed otherwiſe heavy and indolent for a young man. He complained of a good deal of pain the inſtant of bleeding, but yet worked for two or three days after. His arm was, nevertheleſs, ſore; and when I firſt ſaw him, which was ſix days from the accident, greatly ſwelled from his fingers to the ſhoulder, and a few black ſpots about the bend of the

the arm, but no ſign of a ſore where he was bled. His pulſe ſeemed full and ſtrong; he had a conſtant ſhort cough, and ſweated a great deal. I ſcarified his arm lightly in ſeveral places, but more profoundly in the diſcolored parts; had ſtrong diſcutient fomentations and poultices applied, which I directed to be repeated night and morning, took away ſome blood, and ordered an active warm purge. In two days I repeated my viſit, and found the ſwelling reach the ſide, though rather leſſened in the fore arm. No phlectinæ were formed, nor did the diſcoloration increaſe, but a ſhortneſs of breathing and cough ſubſiſted. I now ordered the bark in ſubſtance, and ſtrong broaths to aſſiſt nature to reject this load of oppreſſion; and though I aſſured the people, that the man was rather better than worſe, and that I had ſome good hopes of his recovery, yet he died the evening of the next day.

Obſ. 28. Mr. C-------, a farmer near Croom, in January 1762, was bled for ſome ſlight indiſpoſition. He found a little more pain than uſual at the inſtant of bleeding; but when the arm was banding

banding up, after the operation, he complained of grievous pain on preſſing the orifice. He was abroad the next day, and found the orifice ſore, which increaſed the day following; and finding it grow more troubleſome, I was ſent for the fifth morning. Inſtructed by my former miſcarriage, I was determined not only to be more cautious here, but to inform myſelf minutely of the nature of a malady, which had hitherto eſcaped the obſervations of the firſt men of the faculty. The man was about forty; and tho' ſeemingly delicate in his conſtitution, yet hardy, and ſubject to no diſorders, except inflammatory colds. I found him with a quick pulſe, and a little huſky cough; the arm ſwelled lightly, with a reddiſh ſtreak over the biceps, and reaching up to the ſhoulder, from the bend of the elbow. He could ſtill bend and extend the arm; nor was the pain great. I bled him in the other arm, and ordered ſtupes and poultices of the warm kind to the affected parts; but told the people, that I apprehended things would not go right, as there was not a *ſufficient degree of inflammation in the parts to form matter, and too much to expect it would*

would diſperſe. I alſo ordered a warm purge, of tincture of ſenna, animated with a little tincture of jallap, on a preſumption of throwing off ſome of this cold, pituitous humor, from the body.

Three days after, I was again called. The ſwelling by this time, and in ſpite of what was done, had reached from the arm to the tops of the fingers, and even that ſide was affected: his pulſe was very quick, and he had a ſhort cough, which ſeemed to me to proceed more from the efforts of nature, to force a free circulation through the lungs, than to be a diſtinct malady. The queſtions I aſked him, confirmed me in my ſuſpicions, and I think the remark too material to be omitted. The ſwelling in the hand, and fore arm, was quite oedematous and cold, without the leaſt degree of elaſticity, nor could I perceive any ſenſibility in the parts. The length of the arm it was more mix'd. I had the arm extremely well ſtuped in a decoction of the bitter herbs, with a good deal of tobacco leaves on ſtale urine, and a poultice of oatmeal and old bottled beer to cover the parts. ----- And though the accommodations were here far from being con-

convenient, and that by ſtaying, if the man died (which ſeemed almoſt certain) I ſhould expoſe myſelf to much cenſure, which by giving a tranſient opinion, as before, could not happen, yet was I determined not to quit this place, till I ſaw the concluſion of this diſorder----Reſolved, at all events, to be able to trace it through its progreſs to its final iſſue.

Finding, about ten o'clock that night, the hand and fore arm perfectly cold, and the ſwelling and coldneſs aſcending to the ſhoulder, with an increaſed oppreſſion and cough, though he had that afternoon taken, by my directions, ſtrong port whey for his common drink, ſtrong ſeaſoned broth, and a couple of glaſſes of claret, with a bit of toaſt at ſome intervals, all which the ſtomach retained---- I took the reſolution, on the ſpot, of making many profound inciſions the length of the arm, in hopes that the activity of the ſtupes and poultices would ſooner pervade theſe parts. As for the fore arm, I deemed that, at beſt, impoſſible to be ſaved; therefore applied all my attention to the arm itſelf. Wherever I carried my inciſions, I found the corpus adipoſum

ſwelled

ſwelled and ſpongy; inſomuch that at the depth of an inch I could not pervade it; (and this, by the bye, ſhews, that in ſimilar caſes we need not fear making profound inciſions) and water as clear as chryſtal ſtarted from the wounds. This iſſue I increaſed, by preſſing the contiguous parts, but it ceaſed with the preſſure. I began theſe inciſions near the bend of the arm, and round it, in nearly parallel lines, each above an inch long, and at about half an inch diſtance. The quantity of water I preſſed from theſe ſores, after ſtuping, determined me, in about two hours after, to perform a ſimiliar range of profound inciſions, about two inches higher up the arm. After again ſtuping, I dreſſed the ſores with a mixture of *mel ægyptiacum, tinctura myrrh. cum aloe, & ſp. ſal ammon.* and the poultice to cover the whole; deſired port wine whey to be given for his conſtant drink, to aſſiſt in forming certain limits between the mortified and ſound parts, and then retired for the night.

Poſtera cumque dies, primo ſurgebat Eoo,
Humentemque aurora polo dimoverat umbram.

About eight this morning the ſwelling of the arm had little abatement: he ſlept little; his cough was conſtant; but he ſweated a great deal. I then made a freſh range of profound inciſions higher up, out of which I preſſed a good deal of clear water; but all the former ones, tho' the lips were extended, yielded none 'till I refreſhed the bottoms of them. By this means, and a gradual preſſure, from the ſhoulder down, the ſwelling ſenſibly leſſened to the eye; but upon again examining, about twelve o'clock, the arm was as turgid as before. I now made a fourth range of inciſions, which reached to the ſhoulder, preſſed out ſome water, and cut others of them deeper, to make the more drains--- Stuped the whole, exceſſive hot, and dreſſed as before deſcribed. I ſtill continued the port whey; and notwithſtanding the quickneſs of the pulſe, he took a paper of bark every two hours; he took alſo toaſt and claret, ſtrong broth, and two freſh eggs. At night the arm was viſibly leſſened; and upon renewing one of the inciſions on the anterior part of the arm, and as near as I could conjecture over the biceps muſcle, about a

table

table ſpoonful of pus, of a pale whiteneſs, ſpurted out of the orifice, and he, for the firſt time, ſenſibly felt the heat of the ſtupes, and the activity of the dreſſings, which, as he obſerved, produced a tingling heat all over the arm. He paſſed this night with refreſhing ſleep; his pulſe became more modetate, his cough leſſened, the ſwelling was greatly abated, and a breathing heat began to glow in the parts. After ſtuping for ſome time, inſtead of the *mel ægyptiacum*, &c. already deſcribed, I had the ſores dreſſed with pledgets armed with a digeſtive of *ung. baſilic. flav., præcipit. rubr., & ol. terebinthin.* warm, and over the whole arm the poultice of oatmeal and beer. On the fore arm I alſo made ſeveral profound inciſions, dreſſed them with the mixture of *mel ægyptiacum, tinct. myrrh. & ſp. ſal ammoniac.* and over this the oatmeal poultice. On opening the ſores at night, thoſe of the arm, which before ſeemed ſo deep and extended, now appeared ſmall and ſuperficial, on account of the ſubſiding of the ſwelling of the ſkin and corpus adipoſum, and theſe of the fore arm greatly leſſened. I quitted this man next day, and he ſoon

recovered both his health, and the uſe of both arm and fore arm.

Reflection.

Never was, I believe, a more preſſing caſe than this; and few ſurgeons, perhaps, would have curioſity and courage enough to act the part that I did. But I began my profeſſion with two fix'd principles, which I have never yet deviated from, and which I would earneſtly recommend to every young ſurgeon.

I. Never to think himſelf arrived to perfection, in a profeſſion of ſo much conſequence to mankind: of courſe to be ever open to conviction, the reſult of new obſervations, either of his own, or others.

II. After making an ingenuous prognoſtic, in truly dangerous caſes, never at the ſame time to refuſe his hearty aſſiſtance, or decline any operation, that may give a chance for life. The reverſe of this, (too often the caſe) tho' it may be deemed ſound, yet I cannot help branding it with the epithet of infernal policy.

Obſ. 29. The daughter of a poor woman of this city, about four years old, and ſeemingly healthy, was bled in the foot for

for ſome feveriſh attack. She did not bleed freely; and the man, in preſſing on and fretting the orifice, in order to make the blood flow faſter, brought on a ſmart inflammation: the orifice grew ſore, and the foot was a good deal ſwelled next day. The day following the circumference of the ſore grew diſcolored, and the foot more inflamed. The third day they brought the child to me. From the ankle down there was a conſiderable ſwelling of a dark, livid color, the pulſe quick, and clammy ſweats, with puking. I on the ſpot made uſe of inciſions to the mortified parts, had ſtupes of the active, ſtimulating kind applied, and over the whole the oat-meal poultice. As ſhe could not keep the common drinks on her ſtomach, I directed a light, pleaſant lemonade; and ſhe took that night two grains of mercury, which purged ſmartly. The ſtupes and poultice were directed to be continued morning and evening; and a decoction of the bark, with elix. of vitriol, was preſcribed, but which the ſtomach conſtantly rejected. For ſome days the parts had a very bad aſpect; and I apprehended I ſhould be under the neceſſity of taking off the leg: but

in

in ſome days more the ſymptoms gradually ſubſided, and ſhe recovered with the loſs of the big toe, near which place the attempt to bleed her had been made, and the two adjoining ones. The whole ſide became after this paralitic, as well as the leg and arm; and the uſe of the arm ſhe has not ſince recovered, tho' now eighteen months from the firſt accident!

Obſ. 30. Andrew Conroy, aged 26 years, well made, and, to appearance, of a ſtrong conſtitution, in May 1760, was ſeized with a fever at Ennis, for which he had been bled in both feet, not in the ſaphena, but in the middle of the foot, from neither of which veſſels much blood came, but he was a good deal hurt. His fever continued for many days, and his recovery was but ſlow. During this laſt period, his feet became very troubleſome and painful, and were probably ſo before, though not attended to: the orifices of the ſores became ſwelled and diſtended, and the intire feet inflamed and diſcolored. Warm ſtupes, poultices, and other aſſiſtances were not omitted by Mr. Burke, a ſurgeon of eminence and humanity there reſiding.

reſiding. In fine, the mortification became fix'd to both feet; and in ſome time the feet, at the junction of the bones of the tarſus, with the metatarſus, ſpontaneouſly drop'd off! The cicatrice formed but ſlowly, but is now complete, and he walks with a good deal of eaſe. In February 1764, I was curious enough to examine this caſe.

Obſ. 31. Doctor Honan, a phyſician of eminence in Ennis, and now reſiding in this city of Limeric, aſſured me, that ſome years ago a woman at Ennis, by name Mary M'Nemara, had been bled in the arm for ſome ſlight inflammatory cold; and notwithſtanding all the aſſiſtance that could be procured her, the mortification gained ground, and ſhe died in five days from the accident.

XXXI. From theſe obſervations it appears, that in all cachochymic habits of body, where the aponeuroſis of the biceps muſcle is wounded in bleeding, a mortification may be juſtly apprehended; and that this mortification does really proceed from too great a relaxation of the ſolids, as well as want of a proper degree of circulation in the fluids-----Of conſequence,

quence, that what will help to quicken the motion of the one, as well as reſtore activity and elaſticity to the other, are the rational methods of cure---- It is on this account that, upon mature deliberation, I condemn bleeding, except upon ſome very urgent or unforeſeen occaſion in diſorders of this claſs; though it appears that I have made uſe of it in the two firſt caſes of this chapter. But a collection of caſes alone are of little conſequence to the public, if the author does not at his cooler hours peruſe, and then form a judgement, as to the motives of ſuch practice, and accordingly reject or continue it. Tho' I therefore reject bleeding in theſe caſes, as rather weakening nature than aſſiſting us; yet I would recommend warm active purges, one or two, according to the indications; ſuch as tincture of ſenna, or hiæra picra, quickened with a little tincture of jallap, to which may be added ſpirits of lavender. Theſe, by throwing off a great deal of cold, pituitous matter, muſt rather invigorate nature. The ſpirits are likewiſe to be ſupported with ſtrong and ſeaſoned broths, wine, with a bit of toaſt, jellies, *&c.* In the mean time the parts ſhould be often

fomented

fomented with ſtupes of the diſcutient kind, warm and active poultices and embrocations; and alſo, where the caſe requires it, profound inciſions; but always regarding the direction of the muſcles. I cannot, nevertheleſs, help obſerving, that though the bark is generally deemed dangerous, where there is a quick pulſe and fever, which both were remarkably in the 28th caſe, yet that it there cauſed no bad ſymptoms; nay, probably helped to make both ſubſide.

CHAP. IX.

Of Mortification proceeding from a Cancerous Diſpoſition of the Body.

As a PROOF of the

Great Reſpect and Eſteem of the AUTHOR,

INSCRIBED TO

DANIEL WEBB, *Eſq*;

Of Baille Bhean Oge, *in the County of* LIMERIC;

The UNIVERSAL SCHOLAR,
The ELEGANT WRITER,
And the POLITE GENTLEMAN.

XXXII. VARIOUS are the opinions of authors as to the nature of cancers. The antients, from their livid or brown colour, ſuppoſed them to proceed from too great an aduſtion of the blood and humors. Others from an acid ferment, which in time becomes corroſive as aqua fortis, and thus burns up the parts. It has alſo been ſuppoſed a real animal, which rends and tears the parts; hence its name----- More modern diſcoverers affirm this diſorder to proceed from

from animalculæ floating in the air, which attach themſelves to particular parts, and by their acrimony to give riſe to this malady. Gendron, a phyſician of Montpelier, in a little treatiſe he wrote on this diſeaſe, affirms, that it is cauſed from the nervous, glandular and lymphatic veſſels ceaſing to perform their functions --- this obſtruction determines a greater flux of humors here; hence pain, diſcoloration, ſwelling, *&c.* But at once quitting theſe ſpeculative gentlemen, who, Icarus like, ſoar too high, and would willingly explain cauſes, without being ſufficiently acquainted with effects: let us propoſe to our brethren a more painful and laborious way, in truth, to acquire reputation, but a more permanent one to ourſelves, and more profitable to the public ---- namely, from ſymptoms and effects, to *creep up* to *cauſes*. To this end I ſhall here preſent an honeſt recital of ſuch inſtances of this diſorder in the extremities as fell under my inſpection, which I am not without hopes may be uſeful to others, as they have been profitable to myſelf, and may be the means of ſaving ſome lives.

XXXIII. It appears to me that cancerous diſorders of the glands differ in a great meaſure from theſe which attack the extremities. I do not here pretend to inveſtigate the cauſe of theſe complaints: I reſolve them all into a kind of previous diſpoſition, or conſent of the parts; and on this occaſion, for want of a better of my own, ſhall adopt the philoſophy of Mr. POPE, who explains my meaning in the following lines.

" As man, *perhaps*, the moment of his
" breath,
" Receives the lurking principles of
" death:
" The young diſeaſe, that muſt ſubdue
" at length,
" Grows with his growth, and ſtrengthens with his ſtrength."

In fact, I have radically extirpated more than three terrible cancered breaſts; and though the patients have recovered, as it were from death, with ſurprizing expedition, yet have I been witneſs of the cicatrice's burſting out again in twelve, fifteen, or eighteen months, ſpreading to the axilla, and, in fine, deſtroying the ſick.

ſick. A very large cancer of the tongue (which I ſtill preſerve) I have alſo extirpated, with a like return; many on the lips, two on the penis, of which one died, but the other got a cure. Not ſo in cancers of the extremities; ſince of four, whoſe caſes I am going to deſcribe, they were all completely cured, without the leaſt return.

Obſ. 32. Mr. L----, a wealthy and reputable farmer, about 65 years of age, of a ſtrong habit of body, and healthy conſtitution, had, for many years, a wart on the middle of the ſecond phalanx of the the thumb, which, for a long time, gave him no trouble. However, ſome time in the year 1755, he, by ſome accident, hurt it, and it grew from that time very painful, which was increaſed by the ſlighteſt touch. The year following it grew much worſe: bled often; and ſometimes diſcharged a bloody ichor.----By advice in the country he drank, for thirty days, the ſweetning woods; living all that time chiefly on dry, brown bread, and a weaker decoction for his common drink. He then had recourſe to ſtrong purges, but with little advantage, and the ſore began to ſpread.---

ſpread.---In the Spring 1757, he again began a courſe of the woods, with the former reſtrictions, and repeated them the Autumn following. All theſe not anſwering, he ſent for a woman to the county of Tipperary, famous for a ſecret in curing cancers, and ſhe applied a cauſtic to the part in February 1758, which was to continue on for three weeks, or 'till it fell off. Hearing a good deal of this ſecret, I, with difficulty, procured it, and it is as follows:

" Take crows-foot an handful; dog-
" fennel three ſprigs; crude ſulphur, white
" arſenic, of each a large ſpoonful, in
" fine powder; let them be well beat in a
" mortar, and formed into balls; one or
" two of theſe powder'd are to be mix'd
" with the yolk of an egg, ſpread on a
" bladder, and applied ſo as to cover the
" ſore."

This is certainly the famous ſecret by which Helvetius made ſo much money in Paris, at leaſt the effects are the ſame. Though the application of this medicine gave him great pain, and ſwelled his hand conſiderably; yet, in three weeks end, the wart, which had many roots, came intirely off with the plaiſter. He found himſelf

himſelf much eaſier, but his ſore was increaſed to the breadth of an half crown. In a few days it became very painful, and he was again prevailed upon to repeat the decoction of the woods. Nothing better in April, he ſent for a ſurgeon of this city; and in the beginning of May for me. The ſore ſpread lower, towards the head of the third phalanx, was very florid and painful, and yet the diſcharge ſeemed laudable matter. Here I had the preceding detail; and from the whole collected ſufficient to convince me, that the diſeaſe was materially in the maſs of blood. I candidly told him, that it was not in the power of ſurgery alone to heal this ſore, which was what he wanted, without having recourſe to internals; and recommended him to take the advice of phyſicians upon it. The man, who was an honeſt Iriſhman, could not comprehend why the aſſiſtance of a phyſician ſhould be neceſſary to heal a ſore, the immediate buſineſs of a ſurgeon. My advice was not reliſhed; and he concluded that I was not ſo knowing as he was informed, or that I had a mind to make a patient of him. In June, hearing a phyſician, from a neighbouring county, to be

at

at the races of Rathkeal, he ſent for him. The month following he ſent for another ſurgeon, from whoſe abilities he formed great expectations. He took inwardly the Plumber's Pill, of the Medical Eſſays of Edinburgh, for ſix weeks, with very little ſucceſs. Fatigued with ſo many courſes, he began to entertain a more favorable opinion of me. However, at the deſire of his ſurgeon, and an eminent phyſician of this city, he came to town, where he ſtaid a month, but gained nothing. His hand grew daily worſe, his appetite leſſened, and very little ſleep. He returned home, melancholly and diſappointed. January 27, 1759, I was again ſent for; and ſo often deceived in his expectations, he was now reſolved to follow any advice I ſhould give. He was much altered ſince I ſaw him laſt. The ſore now reached the carpus: all the phalanges of the thumb had fallen off one after the other; all the bones of the metacarpus were affected, and all the fingers were quite crooked and uſeleſs. An inexpreſſibly fœtid, acid humor diſcharged, and the fore arm was diſcolored beyond the olecrane proceſs of the cubitus. A piercing, ſhooting pain continued

tinued from four in the afternoon, till the ſame hour next day, when he generally got eaſe, and ſome ſleep. This pain was from the elbow to the ſore, and, ſometimes, to the ſhoulder. He, for the laſt three months, had a conſtant head-ach and reeling, ſo that the lighteſt motion in the floor gave him pain. I told him, I would do my utmoſt to ſerve him: that all I could hope for was, by putting his blood into ſuch a condition as to reſiſt the malignity of the cancerous matter, when, I flattered myſelf, taking off the arm might recover him. On this principle I ordered powders of levigated crude antimony, and calomel, with a ſmall quantity of reſin of jallap, of which he took a paper night and morning, with half a pint of a decoction of guajaic. ſarſa, and the bark: for a common drink, I allowed him cyder, of which he was fond, and which I judged an excellent antiſceptic. Theſe powders opened him about twice a day; and in the courſe of ten days he grew ſurprizingly better; his head-ach quitting him, his appetite returning, the ſhooting pain leſſened, and he could get up and attend his buſineſs, which he was a long time incapable of.

When he had continued this courſe a month, he thought he had little more to do, expecting the ſore would heal every day. I thought myſelf obliged to undeceive him, and judged the time proper to take off his arm near at hand. I told him, I ſhould deem myſelf guilty of a great crime, if I did not thoroughly diſcharge my duty to him, as well as mankind. That the neceſſity of his looſing his arm was ſo obvious, that it admitted of no doubt: however, in a caſe of this conſequence, adviſed him to hear more opinions, and ſeparately. He accordingly at one time ſent for the deceaſed ſurgeon Vandelure; at another, for doctor Martin; then for the late doctor Nihill; and each agreed on the abſolute neceſſity of the operation. Thus informed, he ſent me word, that he was ready to ſubmit to the operation, and deſired me to bring what aſſiſtance I thought neceſſary. March 27, doctor Martin, ſurgeon Vandelure, and I, went to Croom; and that day I took off the arm near the ſhoulder. He ſupported the operation with amazing intrepidity, and it was over, and he in bed, in a very ſhort time, though I uſed the double inciſion.

ciſion. I opened it the fourth day: every thing went on well; and I quitted him the 14th of April, when the whole ſore was reduced to the breadth of half a crown, the ſtitches drop'd off, and he up every day for ten days before; ſo much does depend on the manner of dreſſing and preſerving the ſkin. I deſired the ſore not to be opened above once in three days, and then dreſſed with dry lint only, and never to take off any of the former lint, if it ſeemed to adhere. The wound was cicatrized by the firſt of May. It was extraordinary to ſee the viſible and ſpeedy effects the cutting off this offending part had over the whole body. It was not off an hour, when he fell into a profound ſleep, which continued ſome hours: his ſpirits returned, his countenance cleared, and from pale and extenuated, to the laſt degree, as he was, I left him, even in them eighteen days, plump and florid; and in the June following he appeared in town, fatter and freſher than he had been known for five years before. I have been very minute in deſcribing the different methods he went through, as he certainly got a radical cure; and that by

ſeeing, in a conciſe manner, the whole, one could better judge from which, or if from all, the cure was effected.

Obſ. 33. Eleanor Jones, about 40 years old, of a good conſtitution, and always regular, was in March 1756 ſeized with a violent itching in the little toe, ſo as by rubbing to become very troubleſome: the parts ſwelled, grew ſorer, and in ſome time the ſame itching came into the next toe. From the firſt aroſe a little warty ſwelling, which was rubbed with blue vitriol; this inflamed the parts, and they became very ſore: I believe real want might alſo aſſiſt to heighten the bad leaven. The ſoreneſs and ſwelling increaſed with violent pain, and by degrees ſeized all the toes. She now walked with difficulty. Some phyſic ſhe took for this complaint, but to no effect; and it came to ſuch a heighth that, for about two years before ſhe applied to me, ſhe went on a barrow. In July 1761, ſhe was brought to town, and applied to me. I found all the toes, as well as the bones of the metatarſus, completely deſtroyed. A large, a monſtrous warty ſwelling, roſe from the tarſus, which diſcharged a bloody water,

of

of a vile ſcent. She was prodigiouſly extenuated, with loſs of appetite, and a very ſtrong hectic. All theſe were unpromiſing ſymptoms; beſides which, ſhe had a piercing pain up her leg and thigh, which in a manner deprived her of all reſt, except catching little naps at times. Add to this, that in the middle and internal part of the calf of the diſeaſed leg there was a conſiderable ſwelling and tumor. Tho' I deſpaired of her cure, yet I was determined to give her ſuch a chance as the nature of her diſeaſe would admit. As ſhe was poor, I had her admitted into the hoſpital of this city; and as her caſe would admit of no delay, after a little phyſic, the 20th of July, in the preſence of a good number of the faculty, I amputated the leg. Upon opening it the third day, I found the ſtump completely black, without the leaſt inflammation or pain. I dreſſed it up haſtily, and had brandy warm conſtantly bathing it; and ſhe took inwardly the bark to half a drachm every two hours, in wine whey. That night ſhe took a paregoric, compoſed of a decoction of the bark, with *tinct. thebaic.* and *elix. vitriol.* She paſſed a tolerable

lerable good night, and ſweated a good deal; it was warm. The ſores were not opened next day, but ſtuped, and the bark continued. The third day a kind of matter appeared. As her ſtomac was weak, ſhe now took the bark in decoction, with *elix. vitriol.* In a word, all blackneſs gradually diſappeared, and in a ſhort time ſhe recovered ſurprizingly, contrary to all expectation.

Obſ. 34. Ellen Kieffe was ſome time ago admitted into our hoſpital for a large cancerous excreſſence, extending from the ſecond phalanx of the thumb, to the wriſt. A hurt ſhe received, about ſix years prior to her admiſſion to the houſe, gave riſe to this frightful and diſagreeable tumor. From the moment of her receiving the hurt, ſhe never was quit of pain, more or leſs, or ſwelling in the part. She took now and then phyſic, and little innocent applications to the part, to leſſen the pain and ſwelling; but a ſecond hurt, received in the ſame part, inflammed the ſymptoms. The ſwelling increaſed: the parts became ulcerated with a diſcharge of a reddiſh water;

ter; and a quick pulſe, and conſtant pain, reduced her conſiderably. This was her ſituation when received into the hoſpital. Upon conſultation, it was agreed to take off the fore arm, as the only probable means of reſtoring her health: and with very little preparations, ſave a couple of doſes of phyſic, was the operation performed. In a ſhort time after the operation, the quickneſs of the pulſe leſſened: the ſymptoms ſenſibly abated; and ſhe was completely cured in a ſhort time, and enjoys good health, though ſixty years old.

XXXIV. From theſe few caſes, thus faithfully narrated, what inductions are we to make? Are we to account cancers of the extremities local, or univerſal? By the caſe of L----- it would ſeem that they are univerſal; and yet, by the two ſucceeding ones, there is a ſtrong preſumption, that they are merely local. The preparations which are judged indiſpenſably neceſſary in theſe diſorders, were not here admiſſible: the ſymptoms were too preſſing to admit of any delay. The two patients muſt have inevitably died in a very few days, had this *only chance* been inhumanly

humanly refuſed them; and by giving it, they have ſurprizingly, and I may ſay, amazingly recovered. But if we ſuppoſe cancers of the limbs to be really local, how account for their ſpreading? for the intenſe pain they give? and for the amazing ravages they commit? inſomuch as to conſume and form into a cancerous maſs, the ſubſtance of fleſh, blood-veſſels, tendons, and even bones too! Again, if we admit the roots of the diſorder to be materially in the blood and juices, how ſhall we explain the pain, fever, and every other concomitant ſymptom of this diſorder, ſoon ſubſiding, on removing the leſed parts? In my apprehenſion, we muſt not, from the premiſſes, draw too haſty concluſions, but ſubmit the deciſion of this intereſting affair to a more numerous collection of experiments. This *one* uſeful inference, I think, we may from the whole ſafely make: That is, in very deſperate caſes of this kind, never to refuſe our aſſiſtance, nor decline amputation, as the ſucceſſes here related are ſufficient to juſtify this practice; and which the following caſe, which traces the in-

fancy

fancy and firſt ſymptoms of this diſeaſe, abundantly confirm.

Obſ. 35. Phillis Wolfe, a poor girl, of about 25 years of age, of a phlegmatic habit, and not very regular, in May 1761, began to complain, and apply to many for advice. Her diſorder proceeded from a violent itching in the little toe, which by frequent rubbing, became extremely ſore and painful, ſo as to diſable her from bread. She took from time to time phyſic, and a variety of applications to the part, to no viſible advantage. In ſome time after, I admitted her into our hoſpital. The toe was ſwelled, very red, and quite deformed, with a thin ichorous diſcharge, and the metatarſal bone underneath very much inflamed. Having peruſed Mr. Stork's pamphlet on the cicuta in theſe diſorders, we were determined here to give it fair play. She began with a pill night and morning; and which was gradually increaſed to ten and twelve in a day. During the long period of five months, that ſhe conſtantly took this medicine, the ſore was conſtantly bathed, every day, with a decoction of hemloc, and dreſſed, at one time with dry lint, at another,

with cerate, basilicon, mercurial ointment, *&c.* but without the least visible amendment, though she did not grow worse. Recourse was now had to a mercurial ptialism, but with no better success. It was then resolved to take off the affected parts above the bone of the metatarsus; but her entreaties for the present prevented it. She was now put under a course of steel pills, and other deobstruents; and no way mended, even by this course, the affected parts were at length taken off, and in some time after she got her cure, and now follows her usual employ in this city.

XXXV. The remark which I made from time to time on this case, may help us to form a better judgement of the nature and cure of this disorder. First, the variety of powerful remedies she took; not crowded upon one another, but giving to each its full play, must, I think, convince us, as well as case 32, that disorders of this class are scarce curable by internals. She took the hemloc in so large doses as 20 grains a day, without any sensible effect, except making her head giddy; and I have tried it, in a variety of cases, with no greater

ſucceſs. She went through a ſix weeks courſe of mercury to no better effect. As to the ſore, during this long period, whenever it diſcharged plentifully, it looked better, and ſhe was viſibly eaſier, whether ſhe took internals or no. If dreſſed two or three days in ſucceſſion with dry lint, cerate, or any abſorbent, though at this time her medicines ſhould be of the moſt powerful kind, ſtill, if the diſcharge became leſſened, which was generally the caſe, the pain and inflammation increaſed ----- A demonſtration that theſe internals were of little, if any real advantage.

CHAP. X.

Of Diſorders of the Bones, that require Amputation.

With great RESPECT and ſincere ESTEEM

PRESENTED TO

Colonel AUGUSTIN FITZGERALD,

Of SIX MILE BRIDGE, in the County of CLARE,

AND

One of the Deputy Governors of ſaid County.

XXXVI. WE may ſafely affirm, ſince experience proves it, that there is ſome particular idioſyncraſy that determines diſorders to different ſeats. As a ſlight wound or hurt, in ſome conſtitutions, will bring on mortification, ſo *here*, a bruiſe or hurt, equally inſignificant, will bring on a ſimilar diſorder of the ſolids. But as, in the firſt inſtance, there is a previous diſpoſition in the fluids which diſpoſes them, on every occaſion, to manifeſt their malignity; ſo in the preſent caſe a like malignity is lurking in the bones,

bones, which is ever ready to prove itſelf. But though vices of the fluids are generally and moſtly attended with very alarming ſymptoms with regard to life, yet in diſeaſes of the ſolids they are ſeldom attended with a like danger, though at beſt the cure is very tedious, even where the greateſt attention is paid to the caſe.

XXXVII. This vice of the ſolids, like that of the fluids, appears to run thro' the whole oſſeous ſyſtem; and wherever a part is affected, there the whole malignity falls. And yet from our knowledge of anatomy and the animal œconomy, it ſeems to me extremely difficult, if not abſolutely impoſſible, rationally to explain, how bones, diſtinct from each other, and from which it would be highly abſurd to ſuppoſe any oſſeous communication can convey a general vice to a particular part? But that ſuch is the caſe, the following concluſive obſervation proves. For we know that a very ſlight hurt in a particular part, will often bring on a caries of the bone, and large exfoliations enſue; whilſt a very conſiderable one ſoon after happening in other parts, will be productive of no bad conſequence. It may be

be ſaid, that this only proves the diſpoſition to be fix'd originally to this particular part; and that exoſtoſis and caries often appear without any manifeſt cauſe. But I have been inquiſitive enough to enquire of many ſick, in whom caries have followed accidents, if they found any particular weakneſs or tenderneſs in that part, previous to ſuch attack, and have often been aſſured that they did not. Beſides, in many caſes, particularly in Obſ. 37. the ſtrong and fetid ſmell proved the vice to be general, and which was removed with the diſorder. And as for ſpontaneous caries, they prove as much for one ſide as the other; but from this ſketch of theory, which may not be totally uſeleſs.

XXXVIII. Of all diſorders of ſurgery, none requires greater patience, on the ſides both of the ſurgeon and patient, than theſe of the bones. And if the patient ſeems otherwiſe in a good habit of body, has a good pulſe and appetite, we boldly affirm, that caries of the bones, however extended and deep, provided they are not accompanied with large ulcers, may be cured, without coming to the diſagreeable

method

method of amputation. It is true an attempt of this kind, is moſtly the work of a long day: but the preſervation of a limb, often of the life of the patient, by that means, is an object well worthy of this trouble. To prove the truth of this aſſertion, and to deter both the ſurgeon and patient from ſuch extremes, I ſhall here ſingle out a few, from a vaſt variety of caſes of this kind, that fell under my inſpection.

Obſ. 36. One Ryan, a fiſherman, about 25 years of age, of a robuſt conſtitution, ſome years ago received a hurt on the left fore arm. A fix'd pain became formed there: it ſwelled, and formed a fiſtulous ſore, out of which ſmall ſplints of bone, in ſome time, came away. It then healed, and again broke out in two different places. In March 1762 he came recommended to our hoſpital. The radius ſeemed ſwelled, and the integuments inflamed near four inches in length; and at each extremity of this ſore was a fiſtulous ſinus, which, upon narrow inſpection, ſeemed to communicate. The two openings were brought into one channel, the hard, fiſtulous fleſh was cut out, and a

pretty

pretty ſmart hemorrhage enſued. For the firſt time the cavity was ſtuffed with dry lint. The ſucceeding dreſſings were of tincture of myrrh and euphorbium, and driers of this kind, till a piece of the radius, of about two inches long, and pretty thick, came away. He then went through a courſe of mercury and the woods; and during this proceſs ſeveral more ſplints became detached. He was at the end of two months diſcharged, but continued an extern for above three months longer before he got a complete cure.

Obſ. 37. One M-----, a poor ſchool-maſter, hurted his elbow, at the olecrane proceſs of the cubitus, which inflamed and grew very painful. An abſceſs of a fiery red color was formed and broke, but the diſcharge was a thin ichor, of a bloody color. He made uſe of a variety of medicines in the country; and at length, fatigued and impoveriſhed, in about eight months after, he came to our hoſpital. The bone was bare more than the breadth of a crown piece, was ſoft, moiſt, and ſpungy; and, by the appearance of the fleſh, was diſeaſed above

two

two inches further. He was very weak and pale, and his breath highly fetid. The diſcolored fleſh was cut away; and to the diſeaſed bone the actual cautery was applied twice a week, the adjacent parts being firſt defended by lint; and at other days the ſore was dreſſed with tincture of myrrh and euphorbium. He was alſo ſupported with good nouriſhing broaths, light meats, *&c.* and he took the alterative mercurial pill, with a ſtrong decoction of the woods, but with very little viſible effect, except that the caries became more of the dry kind, and that his ſtrength and conſtitution were greatly mended. He after this went to the country, and in about five months after came to ſee me, quite recovered, and his arm ſound. He told me, that it was a conſtant uſe of the ſweetening woods on lime-water, with the uſual dreſſings, that got him his cure: though it ſeems more than probable, that the foundation of it had been laid at the hoſpital.

Obſ. 38. Margaret M'Donnell, about 16 years of age, freſh colored, and healthy looking, in January 1761 was admitted into the hoſpital for a caries of the tibia.

About three years before, ſhe hurted her leg near the knee. The part became very painful: a tumor was there formed, and in ſome time broke. A thin ſanies diſcharged, and little care was taken of it. In ſome time the hole became profound, and a ſecond was formed in the middle of the leg, and a third near the malleolus internus. The upper orifice became greatly enlarged; and when we firſt examined her, part of the tibia could be ſeen bare and diſcolored; and, on preſſing with a probe, ſeemingly looſe. An opening was made, from the firſt to the ſecond ſinus, or to that in the middle of the leg, and by ſpunge tents kept ſo. The looſe part of the tibia was ſtirred from day to day, and the ſore dreſſed with tincture of myrrh, ſometimes with the addition of ſp. ſal ammoniac. She took inwardly preparations of mercury in various ſhapes; but it ſeemed to aſſiſt very little in throwing off the exfoliation. Poultices of oatmeal, and grounds of beer, or lees of wine, were often applied; which, though they here ſeemed to anſwer no great end, yet I have known them, in other caſes of this claſs, to be very uſeful. To as little purpoſe

poſe were, at other times, poultices of roaſted parſnips uſed. However, with great attention, in about three months from her reception, that part of the tibia which had been looſe, extending to the middle of the leg, came away. It was very thick in the centre, but more ſcaly towards its extremities, and meaſured four inches. This, with many other conſiderable exfoliations, I have bye me. A ſecond exfoliation, in a conſiderable time after, of the remainder of this part, was thrown off. But ſhe continued for above ten months a patient before ſhe got a complete cure: and even now the appearance of this leg is odd enough, it ſeeming to form a kind of curbure in the internal part of the leg, from whence theſe conſiderable ſeparations came, and the bone itſelf, ſeeming to bear no proportion to that of the other, whilſt on the outſide it ſeems ſtraight enough, and to be as ſtrong as the other, though more tender.

XXXIX. It is, indeed, profound ulcers, of very long ſtanding, with caries of the bones and anchyloſis, and caries of the bones of the tarſus and inferior condyles of the femur, that ſeem to baffle the ſkill,

and tire the patience of the ſurgeon and of the patient, and to give way to nothing but amputation. But before recourſe is had to ſuch ſevere means, every other method ſhould firſt be tried. As then theſe complaints may be juſtly deemed mortifications of the ſolids, whatever may help to ſtimulate the parts, and aſſiſt nature in throwing off the malignity, are certainly the rational methods of cure. To this purpoſe ſtupes of the diſcutient and active kind, poultices of oatmeal and ſtale beer, lees of wine, or firſt run of whiſky; others of old parſnips roaſted, and beat into a ſmooth poultice, with ſp. ſal ammon. ſometimes even that of muſtard, garlic and vinegar, may be tried. The fiſtulæ, or ſinus's, if any, may be injected from day to day with ſome warm, deterſive injections------ *E. G. aq. hord. mel. roſar. & tinct. myrrhæ* ---- the internals may be mercurial purges, the alterative mercurial pill, with the woods on lime-water; and, ſometimes, a mercurial (but a gentle) ptyaliſm has been found efficacious.

Obſ. 39. It was by ſuch means that one Donoghoe, for many years afflicted with an exoſtoſis and caries of the bones of the tarſus

tarſus of the left leg, with a fiſtulous ſore pervading theſe bones, was reſtored to the uſe of this limb. The fiſtula healed, the ſwelling became conſiderably abated, and he had ſtrength enough in the limb to follow his uſual occupation of portering, but at times only.

XL. But where theſe means have been unſucceſsfully uſed, and the ulcer and caries ſtill continue obſtinate, or the anchyloſis and caries of the tarſus are no way mended, with a darting pain ſhooting up the tibia: that, in both inſtances, the leg is in a manner uſeleſs; and the conſtant pain and diſcharge weakening the patient; it is, in this caſe, manifeſt there is no other alterative, but a perpetual lameneſs and pain, by continuing the limb on, or health and vigor, by the taking it off. For it is pretty remarkable, that amputations under theſe predicaments, are moſtly ſucceſsful: more eſpecially, as in our method the advantages deriving to the patient, are infinitely greater than thoſe in the common manner of amputation. But as nothing carries greater conviction, than example as well

well as precept, here follows ſome inſtances in both caſes.

Obſ. 40. One M'Guire, a poor man, in the ſummer of 1756, received a violent hurt in the right ancle, with a conſiderable wound, by the fall of a very large ſtone. For want of proper care, in the beginning, probably heightened by a bad habit, and want of proper nouriſhment, the ſore grew very bad; and in this ſituation, ſome one requeſted I would viſit him. Inſtead of a conſiderable wound, as it was in the beginning, I found the bones of the tarſus greatly ſwelled, with a couple of fiſtulous ſores, freely pervading the bones; and the paſſage of my probe ſoon informed me, that theſe laſt were in a mortified ſtate. In vain were warm, diſcutient fomentations, active poultices, and deterſive injections uſed externally, as well as the bark adminiſtred inwardly; for his relaxed ſtate would not admit of the evacuations recommended in ſection XXXIX. He continued thus for about five weeks, little mended. I then recommended warmly to him amputation (being a young man) as the only relief, which he would not hear to. I nevertheleſs ſaw him, at times, for about

about two months more. From this time I heard no more of him for ſome weeks; till he was one day brought to my houſe on a barrow, much emaciated, and the fleſhy part of the diſeaſed leg greatly diminiſhed, but the ſwelling of the ancle was no way abated, though the fiſtula were dried up. In ſome days after I took off this limb: the bones of the tarſus were quite rotten, as was the inferior part of the tibia and fiſtula, connected with them, but not in ſo remarkable a degree as the tarſal bones; as I could run my knife, with the greateſt facility, through every part of theſe laſt. The ſore healed kindly, and the man's appetite, complexion and ſtrength, ſoon became reſtored.

Obſ. 41. Francis Kennelly, the firſt perſon I amputated in the new manner, and whoſe caſe has already made ſo much noiſe, was admitted into our hoſpital in November 1761. This man was about 60 years old, of a delicate conſtitution, and ſallow complection, and had long labored under an exoſtoſis and caries of the bones of the tarſus; but which, for about ſix months prior to this date, were

attended

attended with very ſevere pain, from the diſeaſed part to the head of the tibia, ſo as to render him in a manner incapable of any kind of exerciſe, which he before performed with the aſſiſtance of two ſticks. He had not any ſore on the part. Upon mature deliberation, amputation was reſolved upon, which he joyfully accepted. As this ſeemed a favourable ſubject to perform my new operation on, ſo long premeditated, I was determined not to let it ſlip. But to avoid any imputation of clandeſtine dealing, I acquainted all the faculty, as well as ſome other gentlemen, of my intentions, ſome days before hand. Accordingly, November 27, in the preſence of ſeveral gentlemen, I took off this limb, in the manner hereafter to be deſcribed. The caſe happened to be a much worſe one than I imagined: a ſmart hemorrhagy enſued; and the ſmalleſt ramifications poured forth blood rapidly, on account of the thinneſs and diſſolved ſtate of this man's blood. Notwithſtanding all my care, a freſh bleeding came on the fourth day from the operation, and again the fifth! He, however, took the bark in ſubſtance, with the elix.

of

of vitriol, in a decoction of *cort. granator. cinamom. aurant. & rad. gent.* on common water; and every night about 25 drops of the tinct. thebaic. to inſpiſſate the blood and juices. But notwithſtanding theſe unfavorable appearances, the ſore ſoon after digeſted kindly: the flap was firmly united the 14th day, and he was ſoon after diſcharged completely cured, and to this day enjoys an health and vigor he had not for many years before.

Obſ. 42. A poor woman at Bruff, about twelve miles from this city, ſeemingly of a good conſtitution, and about 40 years of age, had labored for about 14 years under a large and profound ulcer of the tibia, with caries of the bone. After trying every aſſiſtance the country could afford, and greatly impoveriſhed, ſhe was at length recommended to our hoſpital by lady Hartſtonge. She was there treated very carefully, and every means tried to recover her leg, except amputation, which ſhe would not conſent to, and therefore was at length diſcharged. After remaining at home for a conſiderable time, greatly emaciated, and her leg much worſe, and unable to come to town, ſhe

petitioned the above lady to ſend out a ſurgeon to perform this operation, and this taſk ſhe requeſted I would undertake. I took off this leg in June 1763, and left her in the care of a man there, who this lady allows a ſmall ſtipend to for attending the poor in that neighbourhood. The cure went on very favorably; and ſhe ſoon recovered ſtrength and vigor, and has ſince enjoyed good health, as ſaid man informs me.

XLI. From the recited caſes, and from the nature of theſe complaints, being moſtly original vices of the ſolids themſelves, it is manifeſt that where they have ſubſiſted for a conſiderable time, and that any general vices of the parts are here determined: it is manifeſt, I ſay, that they ſhould be deemed, and really are, local; and that where the general method of cure deſcribed has failed, amputation may, with the higheſt confidence, and greateſt certainty of ſucceſs, be undertaken. Nevertheleſs I ſhall here preſent you with a very intereſting caſe, by which it appears, that leaving the leaſt remains of the leſed parts on, is of fatal conſequence to the patient. We know that the

recital

recital of unſucceſsful caſes, is often of greater conſequence to the public, than that of ſucceſsful ones ---- They ſerve as becons to warn ſucceeding practitioners from ſimilar perils.

Obſ. 43. Margaret Callinan, a poor woman of a robuſt conſtitution, aged about fifty, had been, for very many years, troubled with a large and profound ulcer of the tibia, with a caries of the bone. It broke out in a variety of different places, on the extent of this bone, from the knee to the ancle, as appeared by the cicatrices, and the nodes, particularly from the knee to the preſent ſore, which reached from about five inches from this place to the ancle, forming a very profound cavern. This leg was taken off in our hoſpital, near the border of the ſore, and upon theſe old nodes. My opinion was, that, in order to enſure a cure, and to be certain of leaving no remains of the leaven behind, it ſhould be taken off above the knee. The ſecond time of opening, the extremity of the tibia looked black; the ſore was extremely painful, never digeſted, and a fever ſeized her, which in the courſe of eight days from

the operation, carried her off, in ſpite of all remedies, and to a very ſtrong conſtitution! Hence it appears, that tho' theſe diſorders may be deemed, in general, local; yet, in order to inſure ſucceſs in amputation, we would be very careful to remove all the vitiated parts in the operation.

CHAP.

CHAP. XI.

Of Gangrene from External Cauſes: And firſt, of the Manner of treating that proceeding from intenſe Cold and Froſt.

PRESENTED

With Great Deference to

EZEKIEL NESBIT, *M.D.*

OF THE

King *and* Queen's College *of* Physicians, Dublin.

XLII. THE power and effects of cold, conſidered either philoſophically, or medically, are truly great. But whether there be a *primum frigidum*, or firſt principle of cold, as many ancient philoſophers ſuppoſed, and which Plutarch places in the earth, the Peripatetics in water, and the Stoics in air, or a *ſummum frigidum*, is a queſtion not admiſſible in a treatiſe on ſurgery, which juſtly (and happily for mankind) rejects all enquiries into firſt cauſes, content with tracing and confining themſelves to effects only. We know

know that froſt and intenſe cold are the greateſt preſervers from putrefaction and contagion; and that dead bodies have been found intire and unaltered for many years, on the Andes, thoſe monſtrous mountains of America, Joſephus d'Acoſta teſtifies. Mr. Ellis, in his account of the North-Weſt paſſage, found unſalted proviſions keep freſh for ſome months: and ancient and modern obſervations prove, that nothing gives a ſpeedier check to the ſpreading of contageous diſorders, than cold or froſty weather ſupervening.

XLIII. But whilſt we contemplate theſe amazing effects of cold on inanimate bodies, it will be no leſs curious to obſerve its action on animate ones. Whilſt the firſt are by it preſerved pure and intire, the laſt are ſoon diſpoſed to corruption and diſſolution! Mr. Ellis, in the above work, relates ſtrange ſtories of fingers and toes, *&c.* becoming mortified, in a very ſhort time, from intenſe cold; and Mr. Walker, in his account of lord Anſon's expedition, tells us, that in going round Cape Horn, amongſt other effects produced by the cold, that wounds many years healed, broke out freſh; and that even the callus

of

of broken bones became diſſolved! But ſhall we be ſurprized at this, when we alſo learn, from Ellis, that ſtrong ſpirits became ſoon froze by the cold? However, ſuch is the wonderful ſtructure and make of man, that the ſame body becomes, by a little caution, capable of ſuſtaining unſhaken extreme degrees of heat and cold. By a man's waſhing in ſnow of a morning, how little ſenſible is he of the intenſeneſs of the cold; and by action, how ſtrongly does the innate heat glow?

XLIV. But if the violence of the cold is ſo great, as fairly to coagulate the blood and deſtroy the native heat, as we certainly know it ſometimes is, ſince we hear every winter of people froze to death, ſo near home to us as England; and ſince a particular friend of mine has aſſured me, that he has, more than once, ſeen waggoners coming into Moſcow, erect in their carriages, tho' dead with the cold; in this caſe, what is to be done? It is an eſtabliſhed cuſtom, in moſt northern countries, when a limb becomes mortified by froſt, inſtead of hot applications, to cover the part with ſnow, which being a leſs degree of cold, gradually and inſenſibly diſſolves

and

and diſſipates the coagulation, and reſtores the circulation. The juſtneſs of this practice ſeems more confirmed by the management of froſted apples; for if they are laid before the fire, in order to be thawed, they looſe all taſte, become ſoon corrupted, and transformed into a ſoft pulp; but on the contrary, if laid in cold water, the icy ſpiculæ are gradually drawn from the centre of the fruit, their ſurface becomes froſted over. Let them be again immerſed in freſh cold water, more of the ſpiculæ will again appear; and by repeating this operation, till all the froſty matter becomes extracted, they recover their uſual flavor. And it is proved, beyond a poſſibility of contradiction, by Hildanus. In his large work in folio, cap. 13. de Gangrænâ & Sphacelo, he relates the caſe of a traveller, brought to an inn, rigid with cold, and as it were dead. The landlord had him immediately immerſed in cold water, by which the froſty matter was ſo ſtrongly attracted, that the ſurface of his body ſeemed covered with a coat of ice. After this, a large quantity of hydromel was given him, together with powder of cinnamon, mace, and cloves, which brought

on

on a plentiful ſweat; and he recovered, but with the loſs of the laſt articulation of all his fingers and toes! The remarkable caſe from Vienna, in January 1763, and publiſhed in moſt of the Gazettes of Europe, though by many treated as fabulous, ſeems to me highly probable. An officer, in travelling from Dreſden to Vienna this winter, met with ſuch ſevere weather, that his ſervant was froze to death on the road, and there left. A violent fall of ſnow coming on ſoon after, ſo as to cover the body, gradually and inſenſibly attracted the icy ſphiculæ to the ſurface: a ſmall ebbing and flowing of the blood commenced. More of the froſty matter became extracted, and the courſe of the blood became leſs interrupted; and in three days after his maſter's arrival at Vienna, to his great aſtoniſhment, his ſervant appeared!

XLV. In our hoſpitable and happy climate of Ireland, where we are abſolute ſtrangers to extreme heat or cold, we can *experimentally* know but little of the terrible ravages and effects of cold; however, by obſerving what happens to boys and children, whoſe hands or feet are be-

numbed with cold of a winter's morning, we will ſee in miniature the juſtneſs of the practice propoſed in the above ſection at large: for by too haſty approaching the fire, acute pain ſucceeds the cold, and the parts become often bliſtered and ſore; whereas thoſe who keep from it, or put their hands in cold water till the numbneſs goes off, find no ſuch inconvenience.

Obſ. 45. About 22 years ago, then very young, in a paſſage from Dublin to Cheſter, we met with a moſt violent ſtorm, and after beating the ſea for three days, we were at length driven into Milford Haven. Being naturally tender, and lying in a cabbin all this time, unable to keep any thing on my ſtomach, my legs became ſo ſwelled with cold, that when we were preparing to land, I found myſelf unable to ſtand, yet I had no pain. I was carried into the boat, and from thence to my lodgings, when I begged to lie down; and, after an hour's refreſhing ſleep, awoke, but with exquiſite pain. My legs were then examined, and appeared quite oedematous and cold, particularly my left, which, from the ancle down, was greatly diſcolored. Warm ſtupes were prepared,

but

but the heat of theſe augmented the anguiſh and darting pain in the parts. I continued for ſome days in great miſery, when the formation of ſeveral black, watery bliſters procured ſome relief, and it was ſuſpected I ſhould looſe the left leg. However, the force of conſtitution, and ſome purging phyſic, with the ſtupes, reſtored me by degrees; but it was three months from the accident before I recovered the intire uſe of the part. And the big toe of the left foot was black and inſenſible for ſome time longer; inſomuch that I have kept it, at times, ſo cloſe to a fire, and ſo long, that water as clear as chryſtal has tranſeeded.

XLVI. In fact, nature ſeems to ſhew an abhorrence to extremes. And if, inſtead of a warm bed, active ſtupes, and ſtrong whey, the extremities had been kept covered with cloaths wet in cold water, and often repeated, till the inſenſibility and numbneſs leſſened, or intirely diſappeared, in all appearance I ſhould ſave a great deal of pain to myſelf, as well as ſome danger. For bodies may be ſaid to be warm or cold, only relatively: ſnow, cold water, *&c.* compared to bodies abſolutely

froze, may be accounted warm. Theſe firſt applied to a benumbed part, inſenſibly diſſolve the coagulation, and attract the icy ſphiculæ; whereas more active applications, like the effect of ſudden heat on a frozen apple (ſect. XLIV.) only diſpoſe the parts to a ſpeedy mortification. And this alſo ſhews why fingers and toes, the noſe, *&c.* become ſoon mortified, on being ſuddenly expoſed to very intenſe cold. This abhorrence of ſudden extremes of heat and cold the ancients in general, particularly the Peripatetics, ſeemed well acquainted with; nor could they ſuppoſe them, in bodies in a natural ſtate to exiſt together: hence violent heat was expelled from bodies by the *Antiperiſtaſis* of the cold.

XLVII. In all dangerous and violent effects of ſudden cold, the fire ſeems to me to be the laſt place the ſick ſhould be brought to; and warm cordials the moſt improper remedies. If the limbs are froze, they ſhould be covered with ſnow; or, if not to be had, in cloaths wet in cold water, and often renewed. The ſick ſhould be kept very far from a fire, not even in a warm room. His drink

ſhould

ſhould be light whey, lemonade, or capillaire: his food broath, gruel, or flummery; nor ſhould they exceed the degree of heat of common warm liquors---His medicines---juſt nothing. For a frozen limb may be compared to a limb cut off: like it, at the ſound part, the circulation is carried on by anaſtomoſis; and, of courſe, the diſſolving the congealed blood ſhould be done gradually and inſenſibly. In ſome time ſalt water, or ſalt and water, ſhould ſucceed to the ſnow, or common water. This ſhould give place to milk and water, a little warm; and this ſhould be followed by more active topics; whilſt the nouriſhment and medicines keep pace to theſe tranſitions. By this means the ſick will gradually and effectually recover, and avoid an immenſity of pain.

XLVIII. But if, by reaſon of being too long expoſed to intenſe cold, the craſis of the blood is totally deſtroyed in a limb; that all our endeavors to reſtore a circulation become uſeleſs there; and that a complete ſphacelus is formed, yet ſtill is amputation with great caution and circumſpection to be attempted. Every method

method laid down, to attract the frozen matter, ſhould be carefully purſued; and when the circulation ſeems pretty well eſtabliſhed, the bark and warm cordials ſhould be adminiſtered. But all this is not enough: the mortified parts, contiguous to the ſound, muſt be ſcarified, and dreſſed with ſoft digeſtives. Stupes and poultices muſt be uſed; and if the inciſed parts diſcharge a well concocted pus, in ſome days, and the patient's ſpirits are good, amputation may be ſafely undertaken, as there is almoſt a certainty of its being attended with ſucceſs. But if the reverſe appears, then muſt it be, without doubt, delayed. In a word, in Gangrenes of this claſs, like thoſe from inflammation, and from a vitiated habit, no poſſible danger can attend delaying mutilation; but every thing is to be apprehended from too haſty a reſolution on this head.

CHAP.

CHAP. XII.

Of Wounds of the larger Veſſels, which require Amputation.

INSCRIBED,

With the moſt profound RESPECT,

To the Right Honorable and Honorable

THE

DUBLIN SOCIETY.

XLIX. IN all ages, no ſymptom was more alarming, both to the ſurgeon and patient, than a profuſe hemorrhagy. To guard againſt this accident, a variety of means have been tried. In ſlight ones, the ancients (as well as many moderns) made uſe of ſtrong catheretics, which, by cauſing an eſchar, for the preſent damed up the blood. When the ſymptoms became more urgent, the actual cautery was the laſt reſource. The dread of this, was the reaſon why the ancients were ſo unfond of performing amputation; and, of courſe, will well explain

explain why they have left ſo little of conſequence on this head. But modern ſurgeons, more bold, as having had the ſolid ſupports of anatomy, have found out a variety of expedients againſt this accident; and the conſequence is, that we daily ſee amputation perform'd with great ſucceſs.

L. In fact, if we give attention to the form of the artery being conical, by which means the force of the circulating fluid muſt be more and more broke, the farther it ſtretches from its baſis, the Aorta. If we attend to the nature of the blood itſelf, being a viſcid, gluey ſubſtance, taken together; and by analyſing, appearing to be compoſed from a reddiſh phlegm, or water, impregnated with a little volatile alcali, a yellow oil, a very penetrating volatile ſpirit, a concrete volatile ſalt, a black oil, thick as pitch; and the remains a kind of charcoal matter. From theſe conſiderations, I ſay, we ſhall find, that ſtopping of violent hemorrhagies is not ſo great a miſtery; and, notwithſtanding the boaſts of ſome, from experience I can affirm, that any thick, ſoft ſubſtance, ſuch as the lycoperdon, or puff-

ball,

ball, moſſes of every kind, beat very ſoft, fine ſcraped lint, or flour, applied to the mouths of the gaping veſſels, and there kept, by a gentle preſſure of the finger, till they adhere to the veſſels, will always ſtop bleedings, even after the amputation of the extremities. If the bleeding ſometimes returns, in theſe caſes it is *only* becauſe, in dreſſing up the ſores, theſe plugs have been by ſome means in part, if not intirely, removed. Of this M. Broſſard ſeemed to be well aware; for he took care to ſee his agaric adhere to the veſſels, before the ſtump was dreſſed up. And it was this attention, more than any particular virtue in the agaric, that made its application in his hands ſo ſucceſsful; and will well explain why, when uſed by others, it did not, in many caſes, anſwer ſo well.

LI. As then both the ſtructure of the veſſels, and the nature of the blood itſelf, aſſiſt us in large hemorrhagies, provided we take the proper means of promoting this kind diſpoſition; that is, by ſeeing our ſoft, ſpungy, and ſimple applications, adhere to the mouths of the veſſels; by dreſſing the remains of the ſore with ſoft,

light lint; by a gentle bandage; and by revulsion by bleeding ----- Yet where the blood becomes vitiated, altered, or too thin, it is manifeſt that here *(only)* our utmoſt attention is required. Petit, in the Memoirs of the Academy of Sciences, gives a remarkable caſe of a nobleman, who had like to have died the 21ſt day after an amputation of the thigh. The learned doctor Huxham gives inſtances of ſpontaneous hemorrhagies, from which the patients have died. In Mr. Gooch's Caſes in Surgery, p. 131. you have the hiſtory of an amputation, in which violent bleedings ſupervened the ſeventh, ninth, and eleventh days, ſo as with difficulty to be maſtered. Here indeed the veſſels ſhould be taken up; but if not eaſily come at, as a good deal of time may have intervened between the taking off the limb and the accident, the ſoft applications, already deſcribed, ſhould be preſſed to the whole ſtump till they adhere: the courſe of the larger veſſels above the part, ſhould be compreſſed with fine tow, or linen, rolled up ſmooth; and the bandage a degree tighter than in the former caſes. This too great dilution of the blood,

blood, ſhould alſo be corrected by internals, ſuch as ſoft nouriſhing broaths, in which nettles, *&c.* may be boiled; balſamics, mixed with abſorbents; the bark, with elix. vitrioli, and acids of the vegetable kind, ſuch as cyder, lemon, *&c.* properly diſpoſed.

LII. But it is in gun-ſhot wounds, where the principal arteries are wounded, ſuch as the brachial, or femoral; or in wounds made by ſharp inſtruments, ſuch as ſmall ſword, ſabre, *&c.* where the like unhappy accidents meet, that the utmoſt ſkill and coolneſs of a ſurgeon is required. In thoſe made by fire-arms, the eſchar ſerves as a ſort of plug, till by digeſtion, or the too haſty uſe of the knife, it falls off. Here we have ſome time to prepare for the attack; but in inciſive wounds, if we are not very adroit and expeditious, our patient---- *Fundit cum ſanguine vitam!* In theſe extremities, it is agreed upon by moſt writers, immediately to amputate, as the limb muſt wither or mortify, for want of this circulating fluid, thus cut from it, and as being alſo the only means left to ſtop the blood. Having often conſidered this affair, I have imagined a more

ſpeedy relief might be found; and tho' I can hardly doubt, in theſe accidents, but amputation muſt at length become neceſſary, tho' we ſuppoſe the immediate apprehenſion (I mean the hemorrhagy) to be maſtered; yet, for reaſons which ſhall be more fully dilated in the 14th chapter, what I would propoſe, in theſe caſes, is the ſtopping of the blood only for the preſent, reſerving the further manœuvres to another day.

LIII. Let us now ſuppoſe a wound, either of the arm or thigh, by an inciſive inſtrument, in which the brachial, or femoral artery is wounded; and a more melancholy caſe cannot be well imagined! The blood undoubtedly pours out like a cataract; and if our relief is not expeditious, the patient may ſpeedily die. In this caſe, the firſt object I would have in view, would be compreſſing the trunk of this veſſel. I would immediately apply Petit's, or the common tourniquet, to the groin, or near the axilla, to ſtop the immediate flux of blood; and then, with the largeſt convex needle, armed with ſix or eight threads, made flat and ſmooth with wax, I would pierce the ſkin, about

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an inch above the wound, and near the ſame diſtance from the beat of the artery, at one ſide; paſs under the artery, and puſh the point of the needle out, at about half an inch diſtance, at the other ſide of the artery. The threads being thus paſſed, and comprehending the artery, and ſurrounding fat and muſcular fleſh, let a ſmall roller of fine linen, not made up hard, be placed over the artery, and on this let the ligature be made; not very tight, but rather moderately ſo; as the ſwelling of the confined corpus adipoſum and fleſh will ſoon ſufficiently compreſs the veſſel, ſo as effectually to prevent bleeding. By this means alſo, convulſions may be avoided, and the very violent inflammation, which muſt neceſſarily follow the compreſſion of ſo many principal veſſels. Beſides, we can at any time, with eaſe, relax or brace this ligature. It is to be noticed, that I do not here determine how deep we are to carry our needle in this new kind of ligature: this is left to the judgement of the ſurgeon. If he is an anatomiſt (without a thorough knowledge of which, ſevere penalties ſhould be inflicted on any wretch, who would daring-

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ly assume this name) he must always know the directions of the principal vessels; therefore, to such, a description of this kind would be tedious and unnecessary: if not, the clearest and most striking account of this kind would be unintelligible; besides, it is for men of profession only this work is intended.

LIV. The present pressing point of danger being thus happily got over, our next attention must be with respect to the state of the wound. Let it be therefore dressed with pledgits of soft lint, covered with flour, if an hemorrhagy continues from any of the collateral branches; otherwise dry, covered with plaister, and a long, retentive bandage. After making a few turns lightly over the sore, let a strip of fine linen, lightly rolled up like a common band, reaching from the ligature to the axilla or groin, be laid over the course of the vessel; and roll here with a greater degree of tightness than over the sore; not enough to stop the circulation, but to break its force on the lesed parts. If the remains of the limb becomes numbed, insensible or cold, which probably will be the case, let hot stupes and spirituous applications

plications be uſed to this part. The ſuper-abundant fever to be kept down by veneſection and antiphlogiſtics: I diſtinguiſh between a fever and ſuper-abundant one. The firſt is *abſolutely neceſſary* in all very conſiderable accidents, to bring on ſuppuration; its abſence, in proper time, is rather a bad, than a good ſign; but where it becomes exceſſive, the above remedies, and ſuch like, are to be uſed.

LV. If, after all, the remainder of the limb ſhould become livid, inſenſible and mortified, and that no poſſibility of ſaving it appears (and indeed it is hard to think how it ſhould) I would ſtill not haſtily amputate, but rather make uſe of ſcarifications and fomentations for ſome days more, for reaſons which will be more fully explained in the 14th *very intereſting* chapter, and fortify the blood and juices againſt this operation. But I would begin my operation where the wound was originally received, except the parts above it ſhould be mortified; and, in that caſe, the taking up of veſſels, except collateral ones, becomes unneceſſary. Here follows the only opportunities that ever offered

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to me, for reducing this theory to practice.

Obſ. 46. In May 1760, when Montgarret-gate (an handſome piece of work, and a great ornament to that part of this city) was taking down, one of the arches ſuddenly gave way, and John Dean, a clothier, then ſtanding on it, fell thorough it, and ſome ſtones fell on him, one of which made a conſiderable wound and fracture of the left parietal bone. I was requeſted to viſit him; and extracted ſome pieces of the ſkull, which tore thorough the dura and pia mater. The temporal artery bled with great force; and after a ſtrong preſſure, by means of ſoft lint over the courſe of this artery, and the capulina bandage (in ſimilar caſes, an excellent reſource) I left him for the preſent. I had not been half an hour abſent, when I was entreated to viſit him again. The blood forced thro' all theſe compreſſions, and flowed very copiouſly. After removing the dreſſings, and finding every other method uſeleſs, with a ſmall convex needle, double threaded, I pierced the ſkin on one ſide of the artery, paſſed it under this laſt, and again

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out at the other ſide; and placing ſome looſe unformed lint over the artery, I here made my ligature pretty tight. All fear of bleeding, from that moment, ceaſed.

Obſ. 47. A gentleman of this city, in May 1762, by ſome accident ſtruck his left hand through a pain of glaſs. A pretty conſiderable wound of the wriſt was the conſequence. The radial artery was alſo cut thro', and ſome ſmaller ramifications were wounded. The arteries bled very freely; and ſoon after I was ſent for. Finding compreſſion not anſwer cleverly in this caſe, he being a little heated with liquor, I took the reſolution of making the ligature of theſe veſſels, eſpecially as it was after night fall. This done, the bleeding ceaſed, and I dreſſed the ſores with ſoft lint, applying a cuſhion of tow to the bend of the arm, to break the force of the blood, which was ſecured by a proper bandage. The ſore was not opened for two days after; and every thing went on in a very promiſing way. In about ſeven days the ligature dropped off; and I now recommended to him the greateſt caution and temperance. He, nevertheleſs, made uſe of this hand on every occa-

ſion; and as my advice was not paid the deference I imagined due to it, I inſiſted on being diſcharged, which was complied with. For it was imagined I made much more of the affair than it deſerved. But though the ſore healed up, yet in about three weeks after, upon ſome very violent effort, the radial artery ejected blood with great impetuoſity; and I was again, with many entreaties, requeſted to viſit him. I clapped a good deal of lycoperdon on this part, which I preſſed on with my finger, over this a good deal of ſoft unformed lint, a compreſs over the artery, and ſecured the whole by a ſtraight bandage; and, as the pulſe was very full, took ſome blood from the other arm. Things remained thus for about five days; when, upon ſome exceſs, a freſh hemorrhagy came on, which was again maſtered. In two days more, it began again; on which I had Mr. Mahony, a good operator and ſurgeon, called in. The following morning it came on very violently; and, apprehenſive that ſuch frequent relapſes would endanger his life, amputation became ſeriouſly thought of. I, however, told them, I had one means more unat-

unattempted, before we ſhould come to this diſagreeable neceſſity; and the next day I had full occaſion to put it to trial. For, on ſome very ſlight motion of the hand, it bled with great profuſion, and I was ſent for. In this ſituation, in the preſence of the other ſurgeon, *&c.* I paſſed a convex needle, armed with three threads, ſmooth, flat, and well waxed, about three fourths of an inch higher up than the gaping orifice of the artery, and at ſome diſtance from this veſſel; pierced the ſkin and fat, conveyed my needle under it, and again out at the other ſide of the artery; put ſome lint, between the ſpaces of the wounds, over the artery, and on this made a pretty tight ligature. All bleeding immediately ceaſed; the orifice of the artery ſoon healed; the ſkin became firm over this part; in about a fortnight after, the ligature caſt off; and he now has the uſe of that hand as firm as the other. Thus by a new, and truly curious operation, was a limb preſerved; and will, I hope, be the means of ſaving many others in ſimilar accidents. Had ſuch a method been taken in the following caſe, a poor man might have preſerved his arm.

Obſ. 48. The butler to a gentleman at ſome diſtance from this city, about ten years paſt, in wiping a glaſs, it happened to break, by which accident he received a conſiderable wound of the wriſt, in which the radial artery was divided. It bled violently, and with ſome difficulty was it maſtered by Mr. White, an ancient ſurgeon here. The bleeding returned in two days --- again in five; and thus continued burſting forth at times, on the leaſt motion of the hand, for near a month. This great loſs of blood having greatly fatigued and weakened the patient, on a conſultation with the late Mr. Gould, amputation of the arm was reſolved upon, and performed on the very next return, by Mr. White, in the preſence of doctor Martin; and the man ſoon recovered, but was rendered incapable of ſervice.

CHAP.

CHAP. XIII.

Of Gangrene from Gun-Shot Wounds.

From an high Senſe of a long and well-proved Friendſhip,

And a due Regard to LETTERS,

INSCRIBED TO

DAVID ROCHE, *Eſq*;

Of the City of LIMERIC.

LV. THOUGH in the original plan of this work I did not intend to dedicate a particular chapter to gun-ſhot wounds; yet, maturely conſidering ſeveral treatiſes on this ſubject, particularly M. Le Dran's elaborate one, and a more modern diſſertation of M. Belguer's, I did imagine I ſhould be able to throw ſome further lights on this very intereſting affair. Of all the accidents to which humanity is unhappily incident, none become more melancholy and complicated, than thoſe ariſing from gun-ſhot wounds. A ſimple wound, or that inflicted by an inciſive inſtrument, though the moſt mild,

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is moſtly, or always, attended with pain, inflammation, ſuppuration, *&c.* A contuſed wound becomes ſtill more embarraſſing; becauſe, beſides the above ſymptoms, the diameter and capacities of the veſſels are in a ſtate of compreſſion, and until they recover their tone, the diſcharges cannot be ſo laudable. But in gun-ſhot wounds, beſides the above recited, many more muſt ariſe, from the nature of the accident. Such are, delaceration and deſtruction of the parts, through which the ball paſſes: extraneous bodies received, and natural ones, becoming ſo; and a ſhock which the whole machine receives, equal to the momentum and velocity of the moving body. So that the effects of a general commotion muſt ſubſide, extraneous bodies be removed, mortified parts taken off, and new fleſh generated, before ſores of this claſs can be brought to the ſtate of a ſimple wound!

LVI. To conduct gun-ſhot wounds to this period, demands four indications. Firſt, to change the nature and figure of the wound, by proper inciſions, from a ſeared and contuſed, to a bleeding one. Secondly, to remove all extraneous bodies. Thirdly,

Thirdly, to ſuppreſs the hemorrhagy: and, fourthly, to remedy the ſymptoms that have already appeared, as well as prevent others that may poſſibly ariſe. To fulfil the firſt indication, it is a point univerſally admitted, that inciſions only will anſwer. In general, the entrance of gunſhot wounds is ſmaller than the exit: the velocity keeps the whirled parts compact, but the reſiſtance ſeparates them: here then are inciſions to be made, in order to convey ſoft balſamic dreſſings to the bottom of the ſore. Wounds in an oblique direction, require the ſame treatment, to prevent fiſtulous ſores, and to give greater freedom to extraneous bodies to diſcharge. Theſe are the only caſes, which appear to me, to require the immediate uſe of the knife. I am ſatisfied, and I believe it will require little reflection to convince others, that large and profound inciſions do neither haſten the fall of the eſchar, nor expedite the cure ---- Warm active ſtupes, and ſoft, oily, and balſamic applications to the parts, will be found, by experience, better calculated to anſwer both intentions. Profound inciſions give additional pain, draw a greater degree of inflammation to

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the parts already pre-diſpoſed to it, and add greater force to the general commotion, but do little towards reducing the ſore to the end aimed at by the means. Warm ſtupes, and ſoft balſamic dreſſings, ſenſibly promote both, without enraging the ſymptoms. If ſpirituous applications to gun-ſhot wounds, before the eſchar falls, be univerſally rejected by the firſt ſurgeons of Europe (though ſtill followed by too many of the ſecond and third claſs) as by its drying quality, and the increaſed pain, no way anſwering the purpoſe deſired; why ſhould not the nature and effect of inciſions require alſo ſome diſcuſſion? Had not the effects propoſed from the immediate and frequent application of ſpirits to hurts of this kind been doubted, the practice ſtill might continue, though now acknowledged detrimental; and by propoſing doubts in this received practice alſo its real effects will be with more preciſion aſcertained. In the few caſes of this kind, that fell in my way, I never found any detriment from omitting inciſions, except in the caſes already obſerved. That is, in deep, penetrating wounds, where the entrance is very ſmall, to enlarge

large it, in order to convey ſoft balſamic dreſſings to the bottom of the ſore, to promote the fall of the eſchars, and the iſſue of extraneous bodies; and in oblique ones, to prevent ſinuſes, and to give greater facility to the paſſage of the pent up bodies. Theſe are the only caſes, that appear to me, to require inciſion.

LVII. Surgeons have been extremely detailed, in their methods of extracting foreign ſubſtances received, in theſe affects, and have invented a variety of inſtruments to anſwer this end, from an apprehenſion that their preſence muſt excite ſevere and dangerous ſymptoms. As the great pain and tedioufneſs, often attendant on this proceſs, muſt conſiderably aggravate the other ſymptoms, and be a ſource of new inflammation, it is certainly an enquiry highly intereſting to the public, to know if this painful ſollicitude might not be diſpenced with---- at leaſt for a time. Let us now ſuppoſe that ball, wadding, and other fortuitous bodies, are lodged deep in a wound of this ſort. They have prepared ſufficient room, in their penetrating, for their abode; and the adjoining parts being in a manner

ſeared, are in a great meaſure deprived of ſentiment. Though what is looſe and unengaged ſhould be withdrawn, yet ſhould what adheres ſtrongly, be unmoved; ſince, for the reaſons aſſigned, no danger can immediately ariſe from its preſence, but very great from any violence in extracting. For the pent up bodies form different lodgments; and any force in extracting them, before the eſchar falls off, muſt be a new ſource of inflammation. It is a caſe admitted by Le Dran, and moſt writers on this ſubject, that though all extraneous bodies ſhould be firſt carefully extracted; yet if, from the ſituation of the wound, and the impacted ſubſtances, ſuch attempts are likely to be attended with great danger, it is then recommended to avoid all operations, and to truſt to nature for the diſcharge, on the ſloughing of the eſchar. If then it be allowed, that when the poſition of the foreign ſubſtances makes the extraction attended with danger, we ſhould leave the work to nature, who ſeldom fails us; aſſuredly in leſs difficult caſes we ſhould leave ſomething to her; at leaſt, wait her motions for a few days. How much we may depend

pend upon her, in these cases, what follows will, I think, strongly prove.

Obs. 49. In June 1764, a desperate gang of villains had united to rob together, or separately, in different parts of the country, and intended to fix their head quarters in this city. The very first attempt they made, happened fortunately to be on a gentleman of determined resolution, and his name should be preserved with honor. Mr. David Dwyer was attacked by three of this gang, on the high road near this city, and knocked down the most forward of them: he was then dragged off his horse, and for a time engaged with the other two. But upon bringing down the second man, the third fled. This villain, though prostrate on the ground, and so kept by Mr. Dwyer, yet discharged his pistol at him, over his arm. It pierced the inferior and posterior part of the left scapula, and passed obliquely towards the spine, where the intercostal muscles and pleura were wounded. But though thus wounded and disabled, yet could not this ruffian disengage himself, notwithstanding his utmost efforts; and he was soon taken, and Mr. Dwyer brought to the turnpike

houſe, where I viſited him. The wound was jagged and tore, for the piſtol was charged with ſmall white flint ſtones, and for wadding, chewed brown paper was uſed. I made neceſſary dilatations, to extract the impacted ſubſtances, and reduce the ſore to the ſtate of a ſimple wound. With a good deal of time, and pain to the patient, I drew out ſome of the paper, and four ſmall ſtones. Upon examining at the next dreſſing more carefully, I found the thorax pervaded; for my probe had a free paſſage into the cheſt. The wound was dreſſed with pledgits armed with a digeſtive of ungt. e gum. elem. diluted with ol. hyperic. hot; the pledgits ſecured by threads, with the uſual apparatus, and a chaffing-diſh of clear coals always kept near the wound during the dreſſing, and which is a precaution always to be uſed in penetrating wounds of the cheſt or belly. As the eſchars began to looſen, ſmall bits of extraneous ſubſtances came away; but what appeared to me very extraordinary, and which is the reaſon of publiſhing this caſe, is, that the ninth day from the accident, too ſmall, white ſtones preſented themſelves to the orifice of the ſore, which

which I eaſily extracted, and which were bigger than any of the former. The preceeding day I concluded that all extraneous bodies were removed, as from the cloſeſt inſpection, nothing appeared; and yet, behold, next day nature performed, without pain or danger, what art, perhaps, attended by both, could not do! A violent cough, and ſweats came on, probably the conſequence of the ſore's being too long expoſed at each dreſſing. It was now dreſſed more expeditiouſly---- the digeſtive was ſucceeded by the balſam. traumat. with which the pledgits were moiſtened: pectorals, and tar-water, ſoftened and leſſened the cough, and the bark the ſweats; and in ſix weeks from the hurt, he was completely cured, and to this day enjoys good health.

Obſ. 50. A young gentleman very lately received a violent hurt, by the unexpected diſcharge of a fowling piece, at about a mile's diſtance from this city. Upon his coming to town, a ſurgeon of this city was ſent for, as was Mr. Vernon, ſurgeon to the 49th regiment, and a very ingenuous gentleman, who in his way, requeſted my attendance. In attempting to get over

over a trench, he made a reſting pole of his piece, and clapping his right hand on the muzzle, to ſpring over, the muſket diſcharged. The third and fourth metacarpal bones of the right hand were fractured obliquely: the ſhot pervaded the carpus, and tore through the extenſor muſcles, along the fore arm, near to the humerus; and a little above the wriſt, the interoſſeous ligament was expoſed. He bled immenſely on the accident, and whilſt the gentleman firſt called was preparing his dreſſings, an artery poured forth blood ſmartly, which ſoon became ſtaunched, on keeping my finger on the orifice for ſome time. All this extended wound was covered with lint, ſurrounded by compreſs and bandage, and wet in brandy. I, on the ſpot, made my objections to this practice, as did Mr. Vernon; and we propoſed, inſtead of this, a ſoft (and I think a very proper) digeſtive to cover the wound, ex ung. gum. elem. greatly diluted with the ol. hyperici. For both reaſon and ſolid practice clearly evince, that in all accidents of this claſs, whatever promotes ſuppuration, and of courſe the ſloughing of the eſchar ſpeedieſt, is the moſt eligible:

ble: now ſpirituous applications, by criſping and contracting the fibres, oppoſes, or at beſt retards this operation; whereas ſoft, oily and balſamic applications, by relaxing the parts, and abating the inflammation, haſtens this proceſs. The ſecond and third dreſſings were, nevertheleſs, with ſpirits; of courſe the inflammation became more ſmart and extended, and the eſchar rather hard and dry, than ſoftened, and little appearance of ſuppuration. The neceſſity of altering our practice became therefore obvious, and ſoft relaxing applications ſucceeded to hot and drying ſpirits.------We began, by ordering a fomentation of camomile flowers on milk and water, with which the intire ſore was ſtuped for a conſiderable time, and then dreſſed with the ſoft digeſtive already propoſed. The ſame fomentation was repeated morning and evening, very hot; and in the courſe of three days the alteration the ſore took for the better, was ſurprizing.----The eſchars ſloughed off, regular pus diſcharged, and the inflammation and pain greatly leſſened. To promote the diſcharge of ſhot, ſplints of bones, &c. a ſeton was paſſed, from

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the firſt wound in the palm of the hand to the carpus, on its back, and at every dreſſing, armed with the digeſtive: an injection was alſo prepared to promote the ſame end. At every dreſſing, without pain, or fatigue, bits of bone, *&c.* came away. All extraneous bodies being removed, and ſuppuration well eſtabliſhed, about the ninth day, the ſores were dreſſed with dry lint, ſometimes moiſtened with ſpirits, the ſeton was removed, but the injection ſtill continued; and as the ſuppuration was pretty abundant, he took the bark in ſubſtance, to two ſcruples, three times a day. By this means, the ſore, which in the beginning threatened no leſs than the loſs of the fore arm, and which, conſidering the parts, might be well apprehended, became every day more and more ſimple: and to ſhew how much, in theſe caſes, ſhould be left to nature, the metacarpal bones, particularly that which ſupported the ring finger, beſides the pieces fractured that came away, was alſo quite looſe its whole length, and which, we conjectured, would intirely ſeparate. Nevertheleſs, by avoiding moving it from time to time, which is too often practiſed in

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ſuch caſes, to haſten its iſſue, it became again firm. The injection was omitted, as weakening the callus formed by nature, and to the two apertures, *i. e.* to that in the palm of the hand, and that on the back of the wriſt, lint wet in ſpirits was applied. A ſmart inflammation now attacked the inſide of the carpus, and which, in about four days, was opened, and a good quantity of pus diſcharged. This was occaſioned by the conſtant *pronation* of the fore arm, and part of the matter falling, and which found its iſſue this way. As the raiſing the limb too often muſt give great pain, beſides weakening the callus of the bones, we contrived, in the *twelve tailed bandage*, an opening for the matter to paſs thro', and were content to dreſs it once in three days, though the upper ſore was every day. It ſoon healed up kindly, as did the openings in the wriſt and hand, the upper ſore became every day contracted, and he has the command of every finger but the fourth; but, what is ſtill more curious, he has neither anchyloſis, or ſtiffneſs of the carpus, which was prognoſticated, and expected.

LVIII. From theſe caſes it appears, that being too ſollicitous about removing foreign bodies in theſe attacks, before ſuppuration is eſtabliſhed, rather retards than promotes the intent of healing; ſince by the falling of the eſchars ſuch bodies become diſengaged, and muſt neceſſarily, of themſelves, tend to the ſurface; it muſt not, nevertheleſs, follow, that where ſuch ſubſtances pervade a part, and are ſenſibly felt at the oppoſite ſide of the member, that we are patiently to wait for this effect. It will be leſs force and conſtraint on nature to make a counter-overture, which, if not done immediately, may, however, be attempted in two or three dreſſings, or when the inflammation is leſſened. Of this practice I had an inſtance in 1759, where a gentleman of my acquaintance, in an *affair*, received his antagoniſt's ball: it glided over the radius, and lodged externally, near the olecrane proceſs of the cubitus. I made, on the ſpot, a counter-overture, and extracted directly the ball; nevertheleſs, had the caſe ſeemed more dangerous, I would probably delay the operation. As to the hemorrhagy, we have already fully explained ourſelves on this

this article, in the preceeding chapter; but the fourth intention to be anſwered, in theſe hurts, namely, inflammation, requires particular attention.

LIX. Of all the ſymptoms that attend external accidents, none is more dreaded by ſurgeons, than inflammation and fever: to guard againſt theſe, profuſe bleedings, antiphlogiſtics, diluting liquors, and low diet, are ſtrongly recommended; and yet, neceſſary as theſe cautions appear, they may be carried to too great lengths. Inflammation is the natural conſequence of every ſolution of continuity: it is even abſolutely neceſſary to bring about the proceſs of healing. The more violent is the hurt, *ceteris paribus*, the greater is its concomitant inflammation. Inflammation then, I boldly advance, becauſe juſtly, ſo far from being apprehended, is greatly to be wiſhed for: its abſence is eternally a bad ſign; and where it is but ſlow, the act of re-union, or healing, is very diſtant. If then a ſlight inflammation is abſolutely neceſſary, to bring a trivial hurt to heal, it muſt conſequently follow, that a more violent one is requiſite to promote a re-union of parts,

after a more desperate accident. But tho' I deem a smart inflammation both necessary and natural after a severe hurt of this sort, and which should not be repressed; but should it become excessive, the pain very great, the fever high, and the lips of the wound inflamed, dry, or discolored, in this case, or even before, should proper evacuations and antiphlogistics be used. What I would mean to inculcate, and which experience will eternally prove, is, that inflammation should not be hastily repressed: it is a true concomitant on all hurts; and its excess or absence should be the only symptoms of this class we should guard against.

LX. After all these precautions, should gangrene come on, the cause should be enquired into. Should it proceed from an excess of inflammation, then are the remedies prescribed under that chapter to be used. If it forms with languor, dejectedness, and absence of inflammation, we must then have recourse to the stimulants, cordials, *&c.* recommended in the fourth and fifth chapters of this work. If the limb be almost severed; that is, if the bones be divided, and the limb suspended

ſuſpended by a ſmall piece of muſcular fleſh and ſkin, then is this part to be ſeparated. Should the principal artery, or arteries, be lodged in the unhurt parts, yet ſhould the diviſion be ſtill effected, obſerving firſt to ſecure theſe veſſels, as we have directed in the laſt chapter. If the integuments and bone be quite carried off, and that ſome projecting pieces of this laſt ſhould ſtick out of the ſtump, I would, by all means, interdict the ſawing off them for ſome days, or till the inflammation is paſſed, for reaſons which ſhall be advanced in the next chapter, which, I hope, will carry their proper weight.

To

To the Honorable

THOMAS SOUTHWELL,

GOVERNOR,

KNIGHT *of the* SHIRE *for the* COUNTY,

AND

CONSTABLE of the CASTLE of the CITY of LIMERIC,

The following

Very intereſting Chapter is dedicated,

AS A

Teſtimony of the great Deference and high Eſteem of the AUTHOR.

CHAP. XIV.

Whether in other External Accidents, that require Amputation, it is more eligible to mutilate on the Spot, or procraſtinate the Operation?

LXI. THE other External Accidents, that neceſſarily require Amputation, are ſo various, and at the ſame time have ſuch a ſameneſs in the manner of

of treating them, except ſome internal vice oppoſes the cure (which, as we have already fully explained, we ſhall not here re-capitulate) that we ſhall paſs them by; content if we can throw any further light on a ſubject, extremely intereſting to the public, and to ſurgery: namely, whether in accidents that require amputation, it be ſafeſt to operate on the ſpot, or defer the operation?

LXII. The Royal Academy of Surgery, whoſe inſtitution and labors do ſo much honor to ſurgery and to France, and who may be truly called a body of practical philoſophers, ſince their great object is the conſervation of man, God's immediate work, have attentively conſidered this great object. M. Boucher has given, on this head, two long, and very uſeful memoirs, relating to gun-ſhot wounds, indeed, the moſt complicated, and melancholy caſes, that can occur. In the firſt, he proves the frequent abuſe of amputation in theſe caſes, by twelve moſt remarkable caſes. "The firſt was a young man, ſhot through the thigh, with a conſiderable fracture of the femur, near the condyles. Conſidering the dangerous tendency

dency of the ſore, and the little probability that the extremities of the bones ſhould re-unite, and the circulation be reſtored, a conſultation was held, when amputation was propoſed, as the only means to preſerve life. The patient, however, reſolutely oppoſed it; and notwithſtanding the large ſplinters from time to time taken away, the frequent inciſions, fever, *&c.* in about ten months he was completely cured, but with this thigh ſhorter than the other.

The ſecond relates to a fracture of the lower extremity of the arm, by a gun-ſhot, of which the patient alſo recovered without amputation. The third to a ſervant, who was ſhot with a piſtol-ball in the fore arm, with which the internal condyle of the humerus and olecranium were wounded; and though the wound was attended with very dangerous ſymptoms, which were relieved by bleedings, inciſions, poultices, ſtupes, *&c.* yet did the patient not only get a cure, at the end of twelve months, but alſo recovered the anchyloſis, by means of warm baths. The fourth caſe, is that of a captain in the Iriſh regiment of Bulkely, whoſe arm was

fractured

fractured by a gun-shot wound, much in the same manner as in the preceeding case; and though amputation was resolved on, yet did he recover without this operation, but an incurable anchylosis remained.

In the fifth case, one of the gens d'arms was cured of a similar accident, with very few bad symptoms. The sixth case, is that of a drummer, who received a shot thro' the lower part of the femur, in which the inner condyle was engaged. The symptoms were violent and pressing: variety of bleedings, incisions, medicines, and extraction of the splinters of the bones, in the course of eleven months, however, completed this man's cure. In the seventh, a captain of the regiment of Orleans received a musket-ball, at the articulation of the wrist, with the fore arm. The inferior part of the radius was fractured, with a considerable laceration of the tendons, *&c.* yet, nevertheless, this patient was cured, but with a stiffness in the articulation. The eighth, was a Dutch prisoner, wounded in the foot; the ball passed from the malleolus internus, and astragal, through the malleolus externus. This man was

completely cured in about nine weeks. The ninth, was a lieutenant of carabiniers, who received a ball, that tore thro' the deltoid muſcle, fractured the head of the humerus, and part of the clavicula. The extirpation of the humerus was judged abſolutely neceſſary, which the patient reſolutely oppoſed, and by that means ſaved his arm, and was diſcharged with a ſmall fiſtula, which the warm bath cured. The tenth was a ſoldier, wounded with a muſket-ball in the upper part of the humerus, with a fracture of this bone, who alſo got his cure without amputation. The eleventh caſe, was that of a lieutenant of grenadiers, of the Iriſh regiment of Clare, who received a muſket-ball at the elbow, with a fracture of the head of the bone, and ſoon recovered, without any bad accidents. The twelfth was a lieutenant of the regiment of Hainault, who received a muſket-ball in the foot, which was lodged in the calcaneum, and after its extraction, he was completely cured."

LXIII. From theſe caſes, the author makes two remarks, which ſhould be ſtrongly inculcated to young ſurgeons: the

the firſt is, that in the inflammatory ſtate of theſe wounds, the topics were moſtly of the relaxing, anodyne, and emollient kind: nothing ſpirituous, or ſtimulating, and the internals correſponding; but that, in the gangrenous diſpoſition, the bark, theriaca, ſpirituous applications, and, in ſhort, the reverſe of this practice was purſued. But though he thinks the efforts of nature, in many caſes, are amazing, yet he acknowledges, that there are certain accidents, which nothing but amputation can remove --- Such, for inſtance, are fractures of the larger extremities, in which numbers of ſplints ſtick out, and cannot be removed --- When the ſame bone is fractured in different places --- When the extremity of one of theſe bones is intirely ſeparated from its body, and ſhattered in many places: theſe, on the ſpot, indicate amputation. The ſecondary ſymptoms, which, he ſays, indicate amputation, are, when the wounded parts are ſeized with convulſions, the conſequence of violent pains, and which the complete ſection of the adjoining tendons (a deſperate remedy truly, and which alone muſt neceſſarily bring on amputation!) does not abate ---

Where the bone is ſurrounded with looſe, flabby fleſh, and a ſanious diſcharge, with acute pain, which indicate the bone diſordered---- And where a ſphacelus is formed.

LXIV. But where the primary cauſes, or firſt appearance of the ſore, require amputation, he thinks, the ſooner it is performed, the better; for when deferred, he ſays, the irritation of the nervous, and violent commotion of the vaſcular ſyſtem, which ſoon ſucceed the accident, put the whole animal oeconomy, and maſs of fluids into diſorder, by which the laudable pus, neceſſary to promote the cure, is defective, and the cure doubtful---at beſt tedious. And he attributes the want of ſucceſs, where the operation is deferred, not to the firſt cauſe, but to this alteration cauſed by the delay---At leaſt, he embraces this opinion, till ſuch time as a ſufficient number of experiments determine, whether more lives are loſt by delaying, than by immediately performing it, where it becomes abſolutely unavoidable---If I underſtand my author, theſe are his expreſs ſentiments.

LXV. This

LXV. This illuſtrious body thought this point worthy their attention; and in ſome time after, M. Faure preſented to them a paper, wherein he attempts to prove, that in gun-ſhot wounds, ſo complicated as to require amputation, in order to make the operation ſucceſsful, we muſt wait till the ceſſation of the ſymptoms. For he affirms, that by immediate amputation, the uſual ſymptoms attending the accident, ſuch as fever, pain, inflammation, *&c.* are encreaſed, and hurry off the patient: whereas by giving nature time to recover the firſt ſhock, her works are more ſpeedy and kind. Of the truth of this, he has had ample experience; ſince he declares, that out of about three hundred perſons, who underwent this operation at the hoſpitals of Douay and Liſle, after the battle of Fontenoi, in the firſt inſtance, no more than thirty or forty perſons eſcaped.

LXVI. Convinced that this rapid mortality proceeded from the expoſing the conſtitution to ſo many violent ſtrokes at once; namely, the uſual ſymptoms attending on all compound fractures, and the derangement which the whole machine muſt ſuffer in conſequence of them, and

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the ſymptoms attending on the amputation alſo, he determined to take a different courſe. Accordingly ten patients, who the operation was judged abſolutely unavoidable on by his brother ſurgeons, he directed to be left bye, and, for a month, was content only to temporize with; that is, to prevent an exceſs of imflammation, opening abſceſſes, and following all other rules of art, except amputation --- Of theſe, the following is an account of their ſucceſs.

" 1. A young Engliſh volunteer was wounded at Fontenoi by a cannon-ball, which broke the head of the humerus, *&c.* and, at the ſame time, a muſket-ball made a complicated fracture of the leg. The ſwelling, inflammation and fever, were very ſevere. Abſceſſes were opened, ſplints of bones removed, and every other caution obſerved. He earneſtly begged to have the arm amputated, but it was refuſed him, being judged uſeleſs. Nevertheleſs M. Faure performed the operation, in the articulation, with the ſcapula; and though extremely weak and extenuated, he recovered very faſt; and it was even obſerved, that the wound of the leg grew better, after this operation, and he was diſcharged,

diſcharged, cured, in two months after. Encouraged by this extraordinary ſucceſs, he undertook the other nine. At this time they were in a melancholy ſituation: their wounds full of fungus fleſh, a bloody ſanies, inſtead of pus, diſcharged from them; and there was no appearance of a re-union in the fractured bones. He began with the worſt caſe, namely, a complicated fracture of the thigh, and the patient had not the leaſt bad accident. Next was a fracture in the articulation of the knee, through which the ball paſſed. --- A compleat fracture of the fore arm, which extended to the humerus--- A wound at the inferior part of the fore arm, with ſhivering of the bones of the carpus --- A wound at the upper part of the humerus, with a fracture above an inch broad --- A fracture of the bones of the carpus --- The os calcis ſhivered, and the tendo achillis tore --- A complicated fracture of the tibia --- A fracture of the tibia, in which the tarſus was engaged."

LXVII. Theſe ten perſons, thus deſcribed, were ſpeedily cured; and from the extraordinary and unexpected ſucceſs attending them, this gentleman contends ſtrongly,

ſtrongly, that in all caſes, that amputation muſt be unavoidably performed in, we ſhould ever defer the operation till the fever and other ſymptoms ceaſe; and exclaiming againſt the little ſucceſs attending thoſe on whom amputation was immediately performed, he adds ---- "We "might even ſay, that the ſooner their "limbs were amputated, the ſooner were "they condemned to death!"

LXVIII. M. Boucher preſents to the academy a ſecond Memoir, in which he gives the above detail, and his reaſons for performing the operation as ſoon as neceſſary. He diſtinguiſhes three periods for this operation. The firſt, immediately, or ſoon after the accident, and which precedes the ſymptoms. The ſecond, when theſe ſymptoms are more or leſs diſpoſed to affect the animal oeconomy: and the third, when the moſt violent ſymptoms are abated, or abſolutely ceaſed, which is the preciſe time contended for by M. Faure.

LXIX. At the time of the hurt, or ſoon after, he thinks the body muſt be in the beſt ſtate, and therefore this is the moſt eligible time for performing the operation. By deferring, from this time, the efforts

of

of nature are uſeleſs, and ſhe becomes weaker, the melancholy effects of which delay, he affirms to have been witneſs of. For how, ſays he, can we expect, that a body, extenuated with pain and miſery for five or ſix weeks, ſhould be then in a better condition to ſupport a terrible operation, than when in full ſtrength, as muſt be the caſe at the time of the accident? He here, in a note, gives ſome inſtances of the fatal effects of this delay; and after, follows a detail of patients, on whom the operation was performed in the firſt period. 1. One of the queen's gens d'arms, whoſe arm was amputated, and he diſcharged in four months. 2. A captain of the Iriſh regiment of Dillon, amputated in the arm, on the field of battle. 3. A captain of the regiment of Hainault, whoſe leg was taken off on the field, and cured in a little more than five months. 4. A lieutenant of the Iriſh regiment of Clare, whoſe leg was taken off ſix days after the battle. 5. A black muſqueteer, the thigh amputated the fourth day---he died. 6. A quarter-maſter of the gens d'arms died four days after an amputation of the leg. 7. A captain of the regiment

of Clare, died four days after an amputated arm. 8. A captain of the regiment of Dillon, died eleven days after an amputation of the leg, made on the field of battle. 9. A captain of the regiment of the Crown died, nine days after an amputation of the leg. So that, out of nine patients, in the ſame hoſpital, on whom the operation had been immediately performed, four were cured, which deferred to the third period, or to the time preſcribed by M. Faure, would have probably died.

LXX. Having thus briefly and juſtly ſhewn theſe gentlemens reaſon for ſuch oppoſite practice, I flatter myſelf, having long conſidered the ſubject, that I ſhall be able to throw this whole affair into an higher degree of certainty.

The great point M. Boucher contends for, is, the great advantages ariſing to the patient, by having his limb taken off in the firſt period, or before the fever, inflammation, *&c.* come on, which in themſelves endanger the life of the party. But it is highly probable, this gentleman never once recollected, that this fever, and all other alarming ſymptoms, though they do not immediately appear, are, nevertheleſs,

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the effect of the derangement in the conſtitution, on receiving the accident; that on this account, it is certainly very bad practice to amputate till, at leaſt, part of theſe ſymptoms are abated, for three exceſſive ſtrong, and clear reaſons. Firſt, ſo much depends upon the habit of body, that we cannot be too cautious in our prognoſtics. For, if the ſlighteſt hurts happening in conſtitutions ſeemingly ſound, are often attended with the moſt fatal ſymptoms, in ſpite of the earlieſt and beſt reſources of art, as by many melancholly inſtances in this preſent work appears; how then can we, with any degree of certainty, immediately promiſe ourſelves ſucceſs, by performing a terrible operation, till we firſt know, if the very juices themſelves will not be the greateſt obſtacle to a re-union? Secondly, how often does it happen, in the beſt conſtitutions, that the terrible ſhock, which the whole frame ſuſtains on a violent gun-ſhot wound, nay, even in a fall, without any fracture, or viſible hurt, that the parts can never recover their tone, and the patient in ſome days expires? What elſe are concuſſions of the brain; violent leaps, where, though

the party comes down on his legs, and has no viſible hurt, yet dies, with all the appearance of a concuſſion of the brain? What elſe, but the velocity of the circumambient air of a diſcharged cannon-ball, which, by deranging the whole animal ſyſtem, kills the party, without ſign of hurt? If theſe account for the death of the patient, will not this be a ſtrong reaſon for delaying amputation, till we know whether nature is ſtrong enough to recover from this ſhock, without adding to his miſery, that of a cruel and terrible operation? Thirdly, let us ſuppoſe, to give this gentleman and his partiſans argument their utmoſt force, that, happily for the patient, though unknown, or never reflected on by the ſurgeon, firſt, that the juices are balſamic and kind; and, ſecondly, that nature is ſtrong enough to recover from the ſhock, which every accident more or leſs ſubjects the conſtitution to; how can we poſſibly foreſee, or, at leaſt, is not the preſumption very ſtrong, that by an immediate amputation, after ſuch a terrible violence, as abſolutely indicates it, we expoſe the conſtitution to the ſevereſt trials, and the greateſt danger poſſible?

poſſible? If in anchyloſis of the tarſus, with great pain, which has reduced the patient very low, we find a ſevere fever and inflammation enſue, the conſequence of the pain, and the ſhock the human frame has ſuſtained by an amputation, how much more is it to be dreaded after a terrible gun-ſhot wound, or complicated fracture, which accidents alone bring on all theſe ſymptoms in an higher degree? Juſtly then does M. Faure explain, "That "the ſooner their limbs were taken off, "the ſooner were they condemned to "death!"

LXXI. The few inſtances advanced by M. Boucher, of the ſucceſs of immediate amputation, for the reaſons I have above aſſigned, can prove nothing for him: if any thing can be granted, it is, that happily for the patients, their conſtitutions ſurmounted the raſhneſs of their ſurgeons, as well as the ſevere trials of nature. As then amputation ſhould *never be practiſed after ſudden accidents*, till, at leaſt, the violence of the ſymptoms, proceeding from it, are abated, for the reaſons aſſigned, and which I again inculcate: namely, firſt, till by laudable ſuppuration we are aſ-

ſured,

ſured, that the juices are balſamic, and which becomes manifeſt in eight or ten days. Secondly, till we are certain that nature recovers from the ſhock, which we will alſo be certain of, by reaſon's becoming reſtored, if loſt, or by the ſtate of the pulſes, and nervous ſyſtem: this alſo becomes apparent about the eighth or ninth day. And, thirdly, till it becomes manifeſt, that the pain, fever and inflammation will not terminate in gangrene, ſphacelus, or death. This the ſtate of the pulſe, and ſpirits, and the nature of the ſuppuration, will determine.

LXXII. But beſides theſe advantages, at leaſt, theſe points of knowledge gained by the delay, another, and a greater, alſo follows; namely, that the abatement of the fever, and the laudableneſs of the ſuppuraration, are the higheſt preparations, and the moſt uſeful, the patient can poſſibly have, previous to the operation: he is, at the time of amputation, in the ſame ſtate that we could wiſh a patient to be in, who is to ſuffer inoculation; and a great degree of certainty attends the recovery of the patient, eſpecially in our method. I ſhall juſt ſingle out one obſervation,

which

which firſt threw me into this chain of thinking.

Obſ. 51. A girl, about ſixteen, of a good conſtitution, ſome few years paſt, on Penny-well road, adjoining this city, was accidentally ſhot in the thigh. The ſwan-ſhot fractured the femur, at the lower condyles, and the rotula anteriorly, and paſſed thro' the parts, with a very large wound. In this ſituation ſhe lay extended on a table for about two hours, when aſſiſtance came. Her pulſe were regular, ſhe ſpoke ſenſibly, and ſeemed more alarmed than pained. We judged amputation abſolutely unavoidable; and her thigh was taken off directly, but ſhe died in about four hours after. Here the death of this girl was viſibly haſtened, by adding amputation, before nature had time to recover from the firſt accident.

The truth of this reaſoning will ſtill appear ſtronger, by the following obſervations.

Obſ. 52. John Quinlon, a ſedon chairman of this city, in a diſpute with another chairman, received a fall, by a trip, that the tibia tore thro' the fleſh, at its articulation with the aſtragal, and reached down a lit-

a little below the os calcis, and the fibula was conſequently terribly fractured. This accident happened the latter end of Auguſt 1760. To reduce theſe parts was abſolutely impoſſible; becauſe a leſs force than was neceſſary for this, muſt ſeparate the foot from the leg. Amputation was the only reſource left. The man was ſtrong, and about thirty-five years of age, ſo that every thing might be expected from the conſtitution. However, on mature deliberation, though amputation was abſolutely unavoidable, I was determined to defer it for ſome days. Accordingly I laid open the fleſh below the protruded bone, and formed an eighteen tailed bandage, in which, after a gentle extention, I laid the leg, bled the man, and had the parts often wet in brandy. In a few days the inflammation became violent, which was ſomewhat allayed, by bleeding, fomentations, and poultices. In twelve days from the accident, finding the foot gangrened, I determined to amputate. The next morning I performed the operation; and tho', after taking off the limb, ſome real pus (the remains of the inflammation) flowed from the ſtump ſpontaneouſly,

yet

yet did the cure go on as happily as could be wiſhed, and in about ten weeks he was completely cured.

Obſ. 53. Allice Blachall, about fifteen years old, ſubject to epileptic fits, and paraletic of the right ſide, leg, and arm, in one of theſe fell into the fire, and had the diſeaſed leg ſo miſerably burnt, that the bones of the toes and metatarſus ſpontaneouſly dropt of, and thoſe of the tarſus were uncovered, and ready to ſeparate. In this condition ſhe was left at our hoſpital door, July 17th, 1762, but with an hectic, lax, and a large diſcharge from the leg, which was alſo burnt. This accident happened about ten days before. The ſores, which were filthy, I had carefully ſtuped, and waſhed with a decoction of wormwood; and finding amputation abſolutely unavoidable, I had a conſultation called, who unanimouſly agreed on the neceſſity of it; but perſuaded me from attempting it in my new way, as not giving the operation a fair trial. But ſatisfied that it would rather add to her chance for life, July 23d, I performed it, and ſhe was diſcharged, completely cured, in the latter end of the following month,

with a firm coat of flesh to cover the extremity of the stump, notwithstanding that this whole side was completely paraletic, and of course the balsamic juices were greatly deficient.

Obs. 54. John Deelan, a poor man, received the fire from a musket, charged with small shot, in his right hand, and so near, that the wadding rested in the sore. Being recommended to our hospital by the reverend dean Massy, the day after the accident, he was immediately admitted. The little and ring-fingers were quite tore off, and hanging by a little flesh, and the two metacarpal bones, that supported them, were also fractured, and terribly tore; and the shot was promiscuously thrown into every part of the hand. It was judged impossible to preserve the hand: but, for the reasons already specified, I was determined to defer amputation till the inflammatory state was over. However, I separated the two fingers from the hand, dilated the sores, and extracted a great deal of shot, tow, broken bones, *&c.* The inflammation which followed was very violent, and extended very high up the arm; but was relieved by profuse bleedings,

emollient

emollient embrocations, poultices of flummery half boiled, nitrous medicines, *&c.* In about twelve days, this orgaſm was greatly abated; and willing to preſerve part of his hand, if poſſible, I extracted the intire remains of the two metatarſal bones; and, by this means, a great deal more ſhot, ſplints, *&c.* and, contrary to expectation, this man was diſcharged with two fingers, and part of his hand, with which he has been able to ſupport his poor family ſince by day labor.

Obſ. 55. One O'Neal, returning from town, much in liqor, fell into a ſand-pit, on the high road near this city, and a very large ſtone fell on his right leg, with ſuch a force, as to fracture the tibia for above three inches, in a moſt dreadful manner, with a wound of a larger ſurface. Indeed the bone was broke into numberleſs bits; inſomuch, that, conſidering the length of the fracture, it may be ſafely affirmed, that a quarter of an inch of it was not intire. He was carried to the turnpike-houſe, and I ſent for. On the ſpot, I prepared an eighteen tailed bandage, dilated the wound, extracted a great many looſe bits of bone, dreſſed with ſoft lint, and

bled him. Next morning he was brought to town, on a door, and dreſſed lightly for ſome days, till the ſtate of inflammation was ſomewhat abated, when I determined to take off his leg, which it was judged impoſſible to be ſaved: and, I dare ſay, from this ſlight deſcription of the caſe, every ſurgeon would conclude the ſame. Nevertheleſs, ſo bountiful was nature in this caſe, and ſo ſtrong in her reſources, that in four months, from the accident, this man could uſe this leg, and is now a living witneſs of this truth --- So that, beſides the reaſons already advanced, we have a chance for one more --- and the greateſt advantage to the patient --- namely, the chance of ſaving the intire limb, by delaying the operation.

LXXIII. But as M. Faure does not abſolutely determine the preciſe time of performing the operation, after the accident, and that by the delay of ſix weeks, or till the ſymptoms ceaſe, numbers of lives muſt be loſt --- I obſerve, that this is very vague and uncertain; becauſe, by the nature of the accident, many ſymptoms muſt ſubſiſt, even after the general inflammation is paſſed ---- Such are, extraneous bodies, con-

conſtantly irritating, ſplints of bones, too abundant ſuppuration, *&c.* In ſuch caſes, it will be in vain to expect an abatement of ſymptoms, till the cauſe of them is removed, namely, the limb taken off. Upon maturely then conſidering the whole affair, I boldly affirm, that the ſhock from the general inflammation, the knowledge of the patient's ſtate of blood, and habit of body, *&c.* will be thoroughly known in about twenty days from the accident; and every ſymptom that continues ſubſequent to this, muſt take its riſe from the ſore itſelf, and that where amputation is abſolutely unavoidable ---- Suppoſing the patient to be treated all the time preceding this according to the rules of art, it ſhould not be deferred longer, leſt the patient ſink under it. By this means, inſtead of about one in three amputated patients recovering, we ſhould ſcarce looſe --- almoſt to a certainty --- one in twenty.

CHAP.

CHAP. XV.

Of the Flap Operation, its Riſe and Progreſs.

PRESENTED

With very great RESPECT and ESTEEM

TO

MAC NAMARA,

Of MORIESK, in the County of CLARE,

AND

CHIEF *of that Antient and Noble Sept.*

LXXIV. THE firſt account we can trace of this operation, is from a book publiſhed by Jacob Young, ſurgeon, in London, in the year 1679, entitled, *Currus Triumphalis ex Terebinthino.* In the latter end of this is contained the extract of a letter, recounting a new method of amputating, propoſed by Mr. Lowdham; which conſiſted in preſerving a piece of fleſh and ſkin, to cover the extremity of the ſtump, in order to abridge the cure. However no traces of its ſucceſs can be found; nor was it till the year 1696, that it became publickly known. At this time P. Adrians Verduin, an eminent

nent ſurgeon of Amſterdam, publiſhed a Latin diſſertation on this ſubject. It is not improbable, but he might receive the hint of it from Young's book, by means of ſome Engliſh ſtudents: if ſo, he acted ungenerouſly, in not mentioning its inventor. But, be that as it may, it is certain his deſcription of it is very full, as well as his apparatus.

LXXV. His views were more extenſive and ſanguine than its firſt inventor, who propoſed no more, than expedition in the cure, and the ſecuring the ſtump from after-pains, by the bones being covered with ſolid fleſh. Verduin imagined, that not only the parts would ſpeedily unite by inoſculation, without ſuppuration, or by the firſt intention, but alſo that the flap of fleſh, applied to the extremity of the ſtump, would ſave the neceſſity of taking up the blood veſſels, a thing often wiſhed for. It muſt be allowed, that his method was cruel and tedious, and nothing but the good reſulting, or expected from it, could countenance it. To anſwer theſe ends, he propoſed a great variety of ſtraps, ſoutiens, or ſupports, *&c.* to keep the divided fleſh exactly united to the new ſawn bone.

How-

However, upon the moſt exact enquiry, notwithſtanding the praiſes beſtowed on this method by Ruyſch, Manget, *&c.* it little anſwered the expectations of its admirers, or of the public. Verduin ſays, he performed this operation in the hoſpital of Amſterdam, and the man did well. Ruyſch ſays, that Verduin's ſon-in-law performed it on a boy of about ſixteen years old, with equal ſucceſs; and Van Ulooten eſſaied it on a third, which alſo ſucceeded.

LXXVI. In 1702, Sabourin, of Geneva, propoſed a ſimilar operation to the Royal Academy of Sciences, which he did not confine to the uſual place of amputation, but propoſed it, even in taking off the limb at its articulation. This illuſtrious body prudently ſuſpended their opinions, till experience confirmed this theory. Accordingly a patient underwent this operation, at la Charite, who died; and tho' the reports of Meſſrs Duverney and Mery, who were deſired to attend this operation, did not abſolutely condemn it, yet it is a known fact, that it was never after attempted in France.

LXXVII. But

LXXVII. But if the above three patients did well after this operation, why was it not more univerſally practiſed? A method ſo manifeſtly ſuperior to any ever invented, if ſucceſsful, after exciting the curioſity of the ableſt ſurgeons in Europe, could not poſſibly be rejected---even by its firſt inventors, as every one knows was the caſe. However, Heiſter and Junkers tell a different ſtory; and ſay, it was laid aſide on account of the monſtrous hæmorrhagy, and for want of ſucceſs: and, notwithſtanding the remarks of M. De la Faye, in the Memoirs of the Academy of Surgery, we certainly think theſe gentlemens account of this affair to be the genuine one; more eſpecially, as we ſhall demonſtrate, from their operation and method of conducting the cure, that, *it was abſolutely impoſſible for it to ſucceed*; and this will ſufficiently anſwer the report made by Manget of another ſucceſsful operation, performed by Sabourin, on a man at Geneva. M. Le Dran ſays, he *once* performed this operation, and the cure was completed in twenty-one days. It is amazing that ſuch a gentleman as M. Le Dran, from whoſe obſervations, and writings, ſurgery has received

ceived ſuch improvements, ſhould ſo lightly dwell on an affair, ſo intereſting to the public, to his own glory, and to ſurgery! Who has been ſo minute and detailed, in things of leſs conſequence, ſhould merely mention this, as it were *en paſſant*, without rendering any account of the ſymptoms, method of dreſſing, *&c.!*

LXXVIII. But M. Garengoet is the moſt ſanguine admirer and advocate for this method. He ſays, officers have been ſeen to ſkip and leap about, after this operation, with the ſame facility, as if no ſuch accident happened; and he regrets, in his Operations, tom. III. that it is not oftner put in practice. He afterwards proceeds further; and in the Memoirs of the Academy of Surgery, not only relates three caſes, where he performed this operation, and the two laſt with ſucceſs, but alſo propoſes further improvements on it. As he ſpeaks with great confidence of this affair, and had promiſed theſe Obſervations to the Academy a long time before they were given in; and that it would be hard to ſuppoſe, that he intended impoſing on ſo reſpectable a body, we ſhall give them a candid examination.

He

He ſays, about twenty years before the preſenting this memoir, he performed Verduin's operation on a maſon at Mants, and this man died the third day after; and, as he obſerves, "Though it cannot "be abſolutely ſaid, that his death was "owing to the hemorrhagy, yet it muſt "be allowed, that it had a conſiderable "ſhare in it." Thus inſtructed, in twelve years after, he performed the flap operation, in Ravaton's method, on a ſoldier of the king's regiment of infantry, but took up the brachial artery, and the patient was completely cured in twenty-eight days: but as he ſays, he omits a detail of the apparatus, as indeed he does of the manner of dreſſing, ſo eſſential in this affair. His third operation was on the leg of another ſoldier of that ſame regiment. After tying up the blood veſſels, he left the threads of a conſiderable length, which he ſurrounded with proper compreſſes, and then applied the dreſſings, pretty near the common way, inſtead of Verduin's, which he here rejects. He continues, "I "did not take off this apparatus till the "fourth day, when I found the flap ad-"herent, with a gentle heat." In a word,

his patient was perfectly cured in twenty-seven days. "I am not insensible (he "adds) that some surgeons, of this re-"giment, have performed this operation, "but by following Verduin's method too "exactly, they have failed of success. I "am persuaded, the alterations I have "already made in it, are of some conse-"quence; and I should *still add more*, did "I see any necessity for making them."

LXXIX. From this account, it would seem, that M. Garengoet had brought this operation to the highest perfection; tho' M. Louis, surgeon of Sal Petriere, in a subsequent paper, in said works, is far from agreeing with him in this point. However, any one who is acquainted with his other writings, his love of fame, and how scrupulously exact he is to make you take notice of every observation and remark of his own; how detailed he is in the triflingest point, that regards his own cases, will see a manifest difference between them, and the paper in question: there he speaks with the highest confidence; here, with the greatest diffidence; there a puffing swelling of the common integuments of the head (see his Surgery,

tom.

tom. 2.) from a fall, which he points out how to diſtinguiſh from a fracture of the cranium (wonderful!) takes up three or four pages; whilſt here, the detail of three different amputations, with his improvements, ſucceſs, &c. ſcarce take up ſo much! But it is long before this, that this gentleman's veracity has lain under ſome doubt; and few read his cure of the man's noſe, that was bit off, and ſtamped on in the gutter, and after by him united, but with aſtoniſhment and ſurprize. (See tom. 1.) In the preſent caſe, he affirms, that the flap was united to the ſtump in three days; that is, by the fourth morning. And yet I would aſk the ignoranteſt tyro of the profeſſion, if ever he ſaw, or even heard, of a wound of but even an inch long, being united in this time? And behold, here, an immenſe flap of fleſh, almoſt that of the whole leg: a complete diviſion of nerves, muſcles, blood veſſels, and bone, united in that ſpace! The inflammatory ſtate of a common wound is ſcarce over in ſix days; and every one knows, that after ſo terrible an operation as this in queſtion, it muſt laſt much longer. From this ſingle, and dangerous aſſertion,

aſſertion, the reader may judge what dependance we ſhould have on this whole account. But this method has not only been cenſured by M. Louis, who thinks, if it had all the advantages and ſucceſs attributed to it by M. Garengoet, as well as by its firſt inventors, and their advocates, it could not be ſo univerſally rejected, even by theſe very men, who were ſo ſanguine to proclaim it. The learned baron Van Swieten, in his Commentaries on Boerhave, ſpeaks of it as an operation univerſally laid aſide; and Mr. Sharp, in his Critical Enquiry, which he did not publiſh till after his viſiting Paris, ſpeaks of this operation, but by hear-ſay; nor does he make much account of M. Le Dran's ſucceſs in this way, any more than he does of the operation itſelf.

Having thus clearly pointed out the little dependance to be had on the different accounts of this operation, from its firſt inventor, to our times, which will appear ſtill clearer in the next chapter, we ſhall there point out the moſt preciſe and expeditious manner of performing this operation, as well in the thigh as leg, with the bandaging, dreſſing, *&c.*

CHAP.

CHAP. XVI.

Containing an Account of the different Experiments made by the Author, to aſcertain his new Method of Amputation.

TO

HENRY QUIN, *M. D.*

VICE PRESIDENT and CENSOR

OF THE

COLLEGE *of* PHYSICIANS, DUBLIN,

AND THE

KING'S PROFESSOR of the THEORY and PRACTICE of PHYSIC,

The PRINCIPLES *of the New Method of Amputation are reſpectfully addreſſed.*

LXXX. THERE are but few ſurgeons of reflection, who the reading the flap method of amputation, I believe, has not made ſome impreſſions on. The facility with which large wounds, where even the bones are engaged, unite; and the daily experience of ſound fleſh covering firmly the bones, after very conſiderable exfoliations, could leave

leave no doubt of this operation's, in the end, proving ſucceſsful, were the obſtacles to this union maturely traced. But to inveſtigate this ---- *Et hic labor, & hoc opus!* The concurrent teſtimony of modern writers, as appears by the laſt chapter, who have all, in a manner, rejected it, for want of ſucceſs; and its total diſuſe, in all the hoſpitals of Europe, were but ſmall inducements to a perſon, not much advanced in years, to attempt to revive it, or rather, indeed, to invent a new and univerſal method of amputation. Convinced, nevertheleſs, by the above remark, that it might be, in the end, ſucceſsful, I was determined patiently to trace the obſtacles that oppoſed it, by which I ſhould render to mankind an eſſential ſervice, and ſome degree of luſtre to my own name.

Obſ. 56. The firſt ſatisfactory hint I received, in relation to this purſuit, was in amputating a cancered breaſt in this city, in May 1754. Mrs. Ann Pinchin, who gave riſe to this remark, had an ulcerated cancer of the left breaſt, of a frightful figure, attended with terrible ſymptoms. From an opening to the nipple, hung a fungous

fungous excreſſence, both in ſize and figure reſembling a large placenta, from which a reddiſh water, of an almoſt inſupportable ſmell, conſtantly diſcharged; which, in the ſpace of half an hour, after application, turned freſh lint, and linen, to an inky blackneſs. This, with a conſtant puking, low pulſe, and hectics, juſtly made her life deſpaired of; and ſhe was accordingly deſerted by the gentlemen who had attended her. I was then requeſted to viſit her; and finding the axilla quite free and diſengaged, and the cancerous maſs confined to the breaſt only, I figured to myſelf, that all theſe alarming ſymptoms might proceed from the diſcharge and pain in the affected part only; and that diſſecting away this maſs, might give a chance for life. I, however, gave her very little hopes, but cauſed the gentlemen, under whoſe care ſhe had been, to be ſent for, and propoſed to them the operation. This means ſeemed to them very unpromiſing; as, indeed, it did to myſelf; but as I had laid it down as a fundamental rule of conduct, never to refuſe my aſſiſtance, where I thought any chance was left, I could not, with ſafety

to my own mind, here refuſe it. They conſented to be preſent at the operation; and, as the ſymptoms were preſſing, and the weather warm, delays were dangerous. I, therefore, next morning, in the preſence of Dr. Martin, her former ſurgeons, and two military ones, diſſected this maſs from the breaſt, by preſerving as much ſound ſkin as I could, which was very conſiderable, and ſtuffed the cavity with looſe lint, mixed with flour. The tumor weighed one pound ten ounces, being taken out whole and intire; and, in about three hours after the operation, the ſymptoms began to ſubſide, according to the old adage --- *Sublatâ causâ, tollitur effectus.* Her puking ceaſed: in the evening, her pulſe became fuller and ſtronger; and ſhe had a tolerable good night's reſt. The morning of the third day, the lint, on removing the dreſſings, was as black, as if the humor, or part of it, ſtill remained. This determined me, to continue dreſſing this cavern, till the matter became clear and well conditioned, which it was the 6th, 7th, and 8th days. The ninth morning, inſtead of dreſſing between the bare ribs, and preſerved ſkin, as uſual, I preſſed them

them together, by means of a cuſhion of ſoft lint, outſide, and dreſſed only the part deſtitute of covering. The eleventh morning, theſe parts were firmly united, and the whole ſore did not exceed the breadth of a ſilver crown; and, to the ſurprize of all her acquaintance, ſhe was cured, and abroad, in twenty-ſix days from the operation, tho' in the beginning deſpaired of.

LXXXI. Though from this fact I was clear, that the operation a Lambeau muſt ſucceed, yet could I, not yet, ſee clearly where the defect lay; nay, I ſhall ingenuouſly confeſs, that were it not for the diſcolored lint, which determined me to keep theſe parts longer ſeparated, I ſhould not, perhaps, gain ſo much credit by the ſucceſs of the cure, as I did by my manner of operating. I, nevertheleſs, ſtill continued my notes and remarks. I obſerved that wounds, even the moſt ſimple, had ſome degree of inflammation, before they healed; and that in others, that required ſtitching, in order to heal kindly, and prevent a diſagreeable cicatrice, my expectations in both were often fruſtrated: nay, I frequently obſerved the inflammation ſo high, and the divided lips

of the wound ſo diſtended, as to tear through theſe ſilken reſtraints! In conſequence of theſe remarks, in many caſes, I was ſingular enough to omit ſtitching, in large wounds, till the ſtate of inflammation was paſt; content, for the preſent, to keep them in a ſtate of union, by light, ſoft dreſſing, and bandage, and had the ſatisfaction, ſometimes, to ſee this operation become unneceſſary; and, when uſed, to be of the greateſt utility. *Healing*, I then obſerved, *by inoſculation, without ſuppuration, by an immediate coaleſcence, or by the firſt intention, is merely chimerical, and is oppoſite to the rules of nature.* Inflammation (contrary to the received canon) is not the time to hope for a re-union of divided parts: this happy minute follows, not precedes, ſuppuration. Thus, ſays I, has it happened in the operation a Lambeau; an union was expected, during the ſtate of inflammation. No wonder then, if the freſh divided flap, being ſtrongly preſſed againſt the rough, prickly ends of the new-ſawn-bone, brought on the moſt dangerous ſymptoms: that the patient died in the inflammatory ſtate; that the flap mortified; or if the patient, through

an

an uncommon degree of conſtitution, paſſed through theſe two ſtates, the remainder of the cure was completed as in the common manner; that is, by the mortified flap's firſt ſloughing off. I was the more convinced of the truth of this chain of reflections, by obſerving, that tumors of the encyſted kind; all ſorts of ſtrumous ſwellings: in a word, all ſores, that manifeſted little degree of inflammation on forming, on opening, or after it, were with the greateſt difficulty healed. Nay, by obſerving the different degrees of inflammation, I have been enabled to form a ſure prognoſtic of the length of the cure. Hence it was clear to me, and muſt be ſelf-evident to every gentleman, that the methods of conducting the cure, as propoſed by Verduin, by Sabourin, by Garengoet, *&c.* being founded on falſe principles, could never ſucceed, except by the ſeparation of the flap.

LXXXII. But if gentlemen of eſtabliſhed reputation, ſuch as the above, have with more confidence than veracity, not only aſſerted, but publiſhed, their ill-founded pretenſions to this operation, as ſenſible what an acquiſition of glory it muſt

muſt be to them; we muſt be leſs ſurprized to hear of people, ſcarce known beyond their ſphere of action, modeſtly *whiſpering* their claim to this honor. Such is the ſubſtance of a letter addreſſed to Mr. Cleghorn, and which this excellent anatomiſt was kind enough to communicate to me. The author not only deſcribes the amputation of a thigh-bone in the flap way, but alſo the ſucceſs attendant on it, with as much gravity, as if every word was true. He ſays, the bone was covered (I think) in four days, and the boy cured in fourteen! The friends of another ſurgeon of eminence have alſo --- indeed with more zeal than candor, aſſerted, that he has thrice performed this operation, with ſucceſs; and yet no effort has been made, to demonſtrate ſuch facts. But this gentleman has very candidly diſclaimed to me, any pretenſions to this honor, which the warmth of his friends would attribute to him. To acquire character, by ſuch inſinuations, requires but very little attention or diligence; ſince the celebrated M. Ferrein, of the Academy of Sciences, has complained to his pupils, that the anatomical diſcoveries in the eye, which, in my *Treatiſe*

tiſe on the Cataract, I publiſhed as my own, were really taken from his lectures. Such an *inſinuation*, and from a gentleman of his *known virtue and integrity*, may ſeem to lean hard on my veracity; but incapable as I know myſelf of ſiniſter dealing, I can eaſily clear up this charge. That he never demonſtrated---at leaſt in the years 1747, 48, and 49, theſe particular diſcoveries, which I indiſputably claim, is what numbers can atteſt: that he never publiſhed them, is what every one knows. Long before I printed that work, I demonſtrated theſe facts to ſome cotemporaries: I particularly mention Dr. Tobin, of Nants, who attended this gentleman's accurate courſe of anatomy, with great diligence, and who never once dreamed of his claim to them. My learned and ingenuous friend, Dr. Camper, than whom no one is better acquainted with the ſtructure of, and writers on the eye, as his elaborate diſſertations on this organ proves; yet, by repeated diſſections, did I convince of the truth of my diſcoveries, as well as the juſtneſs of my New Theory of the Cataract. This gentleman, who came directly from Paris, and after me, would

ſuch

ſuch diſcoveries, and on a favorite ſubject, eſcape him? Would a member of the Academy, and moſt eminent profeſſor of anatomy, who has deſcribed the lymphatics of the eye, ſuppreſs theſe on the very ſtructure of this organ?---After all, I am ſatisfied, that he ſhould be ſuppoſed a *ſilent* diſcoverer of theſe labyrinths of nature, but let me not be ſuſpected of an act of inſincerity, which I was never capable of.

Obſ. 57. In March 1759, I cut off a gentleman's arm, at about eight miles diſtance from this city. By good management, a great deal of ſkin was preſerved in the operation; and the bone, on dreſſing up the ſtump, was ſunk above half an inch from the ſurface of the wound. When inflammation was abated, and ſuppuration firmly eſtabliſhed, that is, about the eleventh day, inſtead of making the bone and the ſkin diſtinct ſores, as I had done, I laid this preſerved ſkin againſt the extremity of the bone, and in twenty-four hours there was a perfect union. I quitted him the 17th day, with a very trifling ſore, which I never after dreſſed; and to this day he enjoys good health.

LXXXIII. But

LXXXIII. But to be thoroughly convinced, that the ſtate of ſuppuration is the only time to attempt a re-union of divided parts; and to prove, in the cleareſt manner, why this operation did not ſucceed, in the many repeated trials made of it, as well to demonſtrate my claim to this diſcovery, in the moſt convincing manner, I tried the following experiment, which, I hope, will not be deemed a cruel, or a wanton one.

Obſ. 58. In February 1760, Catherine Cronen, a poor woman, from near Killmaloc, preſented herſelf to our hoſpital, then in its infancy, with a terrible cancered breaſt, with ſtrong adheſions to the adjacent parts, which I extirpated, in the preſence of a good many of the faculty. I ſtuffed the cavity of the ſore with ſoft, dry lint, every where, but in the lower part of the breaſt, where I reſerved a piece of the ſkin, which I preſſed to the bare ribs; and in that ſtate kept it, by ſome looſe, unformed lint outſide, for my future inſpection, without taking any notice of this proceeding to any preſent. When ſuppuration was every where elſe eſtabliſhed, I obſerved here the corpus

adipoſum melted down: the ſkin thin, diſcolored, and diſcharging a bloody ichor; and was, in fine, cut out.

LXXXIV. The flap operation being thus experimentally proved, and all the labyrinths of nature, to oppoſe this end, unravelled, I began moſt attentively to conſider the different manner of operating, with the apparatus and bandaging, in order to render this operation leſs tedious and painful, and more univerſal, than that deſcribed by Verduin, Garengoet, and Heiſter. Thoſe of Ravaton, Vermale, and La Faye, for amputating the thigh, are certainly painful, and terrifying to the higheſt degree. Unhappily for mankind, our profeſſion often --- indeed moſtly --- obliges us, in order to be uſeful, to be cruel; but then, this ſhould be as little ſo as poſſible, conſiſtent with the patient's ſafety. But the means I made uſe of, to anſwer this end, and the operation, bandaging and cure, ſhall be deſcribed in the next chapter.

TO

TO

JOHN NICHOLS, *Esq*;

SURGEON GENERAL,

The New Method of Amputation is respectfully inscribed: Its Importance recommended to His Consideration; and its general Use, to His Countenance and Protection.

CHAP. XVII.

Of the Method of performing the New Operation, on the Leg, with the bandaging and dressing.

LXXXV. IN Verduin's method of amputation, the rule was, to to cut away the fleshy parts, to the tendo achillis; and after sawing through the bone, if the flap was too big, it again suffered a second incision, as if human flesh was to be clipt, and pared, like cloath, or linen! To keep this flap united to the bare bone, he imagined a variety of straps, and machines, highly embarrassing to the operator, and painful to the sick! But having, in the last chapter, demonstrated,

that the attempting an union of these parts, at this time, was the true cause of this operation's failing of success; and willing to determine the precise quantity of flesh, necessary to be taken off, in the flap operation, I considered the whole as a new method; determined to follow no guide, but that of reason, and anatomy, as the poet has it---*Nullius addictus, jurare in verba magistri.*

LXXXVI. After measuring the circumference of the calves, of a variety of legs, I found, upon a general standard of men, that fifteen inches might be found as a medium; the diameter of which (supposing it a complete circle) would be, according to Euclid, about 5-$\frac{1}{4}$ inches, which appeared to me necessary to be preserved, below the amputated part, in order to form a flap sufficient to cover the stump. But as this great length of flesh would make the operation practicable but in a few cases, and, of course, exclude it from that universal good, I hoped it capable of, I began to consider of some conciser means. After sawing some tibiæ, at the usual place of amputation, and measuring the diameter of the two bones together, I conjectured,

jectured, that about 3 + ½ inches, might be admitted as a general ſtandard of adults. If then, ſaid I, an oblique ſection be made of the ſkin and muſcles, at about three inches, or, at moſt, three and an half, below the part to be amputated, and continued in a ſloping direction, till it reaches the bone, at the place of exciſion; by a circular inciſion, of the remainder of the fleſh and ſkin, at this part, we ſhall preſerve flap enough to cover the ends of the bones. By this means, ſaid I, ſurgeons will be enabled to perform this operation, in every caſe where amputation becomes neceſſary; and it will be then found as expeditious as the method of the double inciſion, and attended with no more pain.

LXXXVII. After trial on a body, I found my flap a little ſhort, on account of the thickneſs of the gaſterocnemii muſcles; but upon repeating my experiment on another body, and having firſt carefully drawn back as much ſkin as I could, I found a flap of 3 + ½ inches would anſwer exactly, allowing for the melting down of the corpus adipoſum, and cellular ſubſtance of the muſcles, by ſuppuration, as leſſening conſiderably the bulk of fleſh,

fleſh, though not the length of the flap. This rule ſhould not be deemed infallible; becauſe, where the limb is extenuated, a leſs quantity of ſkin will ſuffice to cover the extremities of the bones, than where the parts are turgid and full. I have ſince found that, beſides the previous drawing up of the ſkin, if, in the circular tour, care is taken to ſave ſome ſkin in the anterior part of the leg, which is eaſily done, by drawing it back, during the inciſion, a flap of three inches will certainly anſwer. Though I have performed this operation three times ſucceſsfully, in the courſe of eight months, and never meaſured the quantity of fleſh, I intended to preſerve, but with my eye; however, in a week after each operation, I was curious enough to meaſure the particular flaps. The firſt, I found, meaſured $3 + \frac{1}{2}$ inches without, from the extremity of the flap, to the place of the circular inciſion; and $2 + \frac{1}{4}$ from the internal edge of the flap to the bone; and this flap was found ſufficient to cover the extremity of the ſtump, tho' a good ſized leg; and that the circumference of it meaſured 14 inches. In the ſecond caſe, the flap meaſured, from without,

out, three inches; and, internally, not quite two. This woman's leg was ſmaller than the firſt patient's, but both bones were rather larger, and much more firm. The periphery of this ſtump was twelve inches. In the third inſtance, the leg was burnt ſo high up, that no greater flap could be allowed, than two inches and one fourth; and, from within, it meaſured $1 + \frac{1}{2}$ inches; and yet this ſtump was alſo completely covered with a good cuſhion of fleſh and ſkin. The limb was greatly extenuated, and the circumference of the ſtump was not quite ten inches. In about eight months after her cure, this girl was ſeized with a malignant ſmall-pox, and again admitted into our hoſpital, where ſhe died. I made a ſkeleton of the body, and found, at the extremity of the ſtump, the diameter of the two bones, together, was $2 + \frac{1}{2}$ inches. Upon the whole, then, I conjecture, that the difference between 3, and $3 + \frac{1}{2}$ inches of a flap, will take in moſt legs; *i. e.* in adults, that it ſhould be ſeldom under 3, nor ever exceed $3 + \frac{1}{2}$ inches.

LXXXVIII. Theſe neceſſary details premiſed, where the neceſſity of taking off a leg

leg is manifeſt, if a man let the hair be ſhaved off, from the knee to where the limb is to be taken off, which will ſave the patient a good deal of trouble in the dreſſings. The ſkin ſhould then be drawn up pretty tight; and let a ſmall band, moderately rolled up, and ſewed from its outſide folds, to the centre of an open roller, of about two inches broad, and a yard long, be placed in the ham, over the artery; and with the open one, going round the knee, let it be thus firmly ſecured. If one ſide of the open band is perforated, ſo as to make it a kind of uniting band, it will roll ſmoother. Then with Petit's, or the common tourniquet, let the artery be ſufficiently compreſt. I have operated with both; and do, on this occaſion, prefer the common one; becauſe, by its uniform preſſure round the limb, leſs blood is loſt, than in the other way. The difference, nevertheleſs, is not of ſo much conſequence, as to give one an abſolute preference to the other: the choice therefore may be ſafely left to the option of the ſurgeon. The patient ſhould be placed on a chair, or low table; for choice, I would prefer a table, of about two feet high,

high, as the leg muſt have ſome degree of elevation. All the apparatus being properly diſpoſed, which conſiſt of a ſtraight edged knife, with the blade as long as that of the common cateline, and pointed at its extremity, the common amputating knife, ſaw, and a few needles, armed with flat threads, and waxed, of different ſizes. ---Let the leg be elevated, about a foot higher, than if an horizontal poſture, and with a ſtrong tape, of about an inch broad, let it be bound round, pretty firm, at the intended place of exciſion; and if, at this time, he lies in a reclining poſture, the raiſing the leg will be the more eaſy.

LXXXIX. Mark, with a pen, the traces where you are to commence your inciſion, which ſhould be, in adults, *at leaſt*, three inches from where the bone is to be ſawed. ---Then, with the ſtraight inciſion knife, make an oblique ſection from this point to near, or to, the bone, ending at your tape: then with this ſame, or the common amputating knife, let the circular inciſion of the remainder of the fleſh be expeditiouſly performed. To do this firſt part of the operation with greater eaſe to

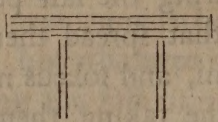
yourſelf, and advantage to the patient, you muſt be careful, if the left leg be the part diſeaſed, to place yourſelf between his legs; and, if the right, to be ou.ſide the limb. The reaſon of theſe ſituations is very obvious: for you cannot, with the right hand, command an exact ſight, or commence your operation, dexterouſly, but in theſe poſtures. This done, apply the ſplit cloath, the two tails of which ſhould croſs over the tibia, and with the ſingle one draw back the flap. Though ſome operators do not approve of the ſplit cloath, in the common method, yet here it is eſſentially neceſſary: for this purpoſe, the tape ſhould be firſt removed. Any little undivided fleſh, may be now ſeperated by the cateline; the perioſteum divided round about, and ſcraped upwards, agreeable to the advice of profeſſor Monroe, and the ligamentum interoſſeum divided. The next thing to be done, is to ſaw the bones; but whatever be your poſition, in dividing the ſoft parts, you muſt be always between the legs, to cut away the bones. As ſoon as you have marked the traces of the ſaw on the tibia, run it along both bones, very light and nimble;

and

and continue this manœuvre till the bones are divided. By this means, the teeth of the ſaw will not be entangled in the bones, nor you often obſtructed in your motion; but the divided bones will be ſmooth, and the operation expeditious.

XC. The limb being taken off, the tourniquet muſt be relaxed; and the tibialis anticus, poſticus, and interoſſeus arteries, carefully taken up. Where the fleſh was thin, and not very firm, I have more than once, made a ligature round the bone, in which the artery was included. But if you uſe, inſtead of the ligature of the veſſels, the agaric, or lycoperdon, which, I think, may be ſafely depended on, in the leg, and fore arm, you muſt be careful, that the fungus does firmly adhere to the veſſels, before you dreſs up the ſtump; as alſo, that it be not removed during the laſt period. As for the veſſels, that ſpread themſelves on the gaſterocnemii, and ſolæus muſcles, in this operation, the taking them up becomes unneceſſary. The blood being carefully maſtered, which you will know by relaxing the tourniquet for ſome time, and no blood's ſpurting out, you are then to

dreſs the ſtump thus. Let the tibia be covered with a pledgit of dry lint, and the reſt of the ſtump with ſoft lint, looſe, and ſtrewed with fine flour. In the thigh and arm, beſides the ſuture, I generally apply ſome lycoperdon to the extremities of the principal veſſels; the ſame may be alſo done in the preſent caſe, if the ligature has been uſed. I would particularly recommend it to the ſpace between the tibia and fibula; becauſe it ſometimes happens, that the interoſſeous artery ſhrinks between the bones; and tho' no appearance of an hæmorrhagy, at preſent happens, yet in a few hours it may return. The poſſibility of this accident, juſtifies the precaution. The flap is likewiſe to be dreſſed with ſoft, looſe lint, and a cloath cut in form of a double T, and covered with adheſive plaiſter, is to cover the dreſſings. Its figure is thus:



The long one is to ſurround the ſtump, above the amputated part; whilſt the tails, by croſſing the flap, preſs it againſt the ſtump, and make all the dreſſings the more

more compact. This done, an hog's bladder moiſtened, and notched, is to encloſe the ſtump; but, previous to this, I apply an handful of lint between the outſide of the flap and the bladder: preſs this laſt to the ſtump; and the notches covering each other, above, make the whole dreſſings ſmooth, and the preſſure ſoft, and ſuch as is beſt calculated to prevent an hæmorrhagy. I know ſome have objected to the uſe of a bladder, in the common operation, that it may conceal an hæmorrhagy; yet, I muſt declare, that in the caſe of Kennelly (Obſ. 42.) tho' the bladder was exactly uſed, as here directed, yet was the bleeding ſpeedily perceived. Let a croſs of Malta compreſs, moiſtened, cover the bladder; and then with a band, of between eight and nine yards long, and near three inches broad, rolled up to two heads, ſecure your dreſſings thus:

XCI. After removing the tourniquet, and other bands, uſed antecedent to the operation, I apply an handful of ſoft lint to the ham, which in the circumvolutions of the band here, greatly reſtrains the violence of the blood; for as this is the moſt troubleſome and alarming ſymptom,

tom, and the moſt reproachful to the ſurgeon, I apprehend all theſe precautions juſtifiable. With one of the heads of your band, make three circulars, above the knee, moderately tight; then with the ſame, deſcend, and make two or three turns, below the knee, rather ſmooth than tight; and then mount obliquely, till you get above the knee, and here make a circular turn. Let the other head of the band go ſtraight down from the poſterior and inferior part of the thigh, over the flap, and above the knee anteriorly, which will become here ſecured by a circular turn, of the other head, over it. Let the other head again croſs the ſtump and flap, from the inſide of the thigh, and aſcend at its outſide above the knee; and here be again ſecured, by a freſh circular turn of the other head. Croſs over the ſtump again, between theſe folds, ſo as to form, on the flap, a kind of ſtar, of ſix points; and this fold becomes alſo ſecure, by a new turn of the other---- Let the remainder, of both bands, be then diſpoſed of round the thigh, at pleaſure, or cut off. I have here rejected the long compreſſes; and ſtudying rather ſimplicity and firmneſs,

neſs, than too embarraſſing an apparatus, have found the above dreſſing a more neat one, and better adapted to this operation, than any other.

XCII. The ſtump being dreſſed, let the patient be laid on his bed, and a pillow put under the thigh, ſo as to raiſe that part. As for a perſon's preſſing with his hand againſt the ſtump, as generally recommended, I never uſed it, even when I operated in the common way; it appearing to me, rather to heat and ſtimulate the parts, than reſtrain an hæmorrhagy. Let the patient be kept to a proper diet; but, in this point, it is impoſſible to fix any criterion: for regard muſt ETERNALLY be had to the patient's uſual manner of living; what being high diet to one, might alone be ſufficient to ſink another into the bowels of the earth. And on this ſingle point, I am convinced, the ſucceſs of many a cure chiefly depends. In general, young people, of plethoric habits, ſhould be kept low; thoſe advanced in years, or whoſe conſtitutions are otherwiſe impaired, ſhould live freer. Some bleed on the commencement of the fever: this I am unfond of, except the

fever

fever is high, or the ſubject full of blood; becauſe without a fever, there can be no ſuppuration, of courſe, no tendency to recovery. In general, the firſt opening of the ſore ſhould not be for four or five days, according to the ſeaſon, or ſymptoms. This ſhould be done, by firſt ſoftening the dreſſings in warm water, and removing only as much of the lint as comes off looſe and eaſy. Let the whole part be then covered with pledgits, armed with the common digeſtive, and ſecured by the double T plaiſter, with the compreſs and bandage already deſcribed. The flap, and the ſtump, at every dreſſing, are to be regarded as diſtinct ſores, and ſeparately dreſſed. If the diſcharge is ſmall, it may be promoted by ſtuping the ſtump with ſpunges, preſſed out of very hot water; by the common digeſtive, and the like. If abundant, it may be leſſened by doſſils of lint, wet in brandy, or tincture of myrrh, or by dry lint alone, which is an excellent abſorbent: the bark, in ſubſtance, will alſo greatly reſtrain it: often, a pill or two of calomel. In general, an abundant ſuppuration, will promote a ſpeedy coalition; whereas, when ſlow, it will be more tedious.

tedious. Of this my three firſt patients were a ſufficient proof. In the firſt, about the eighth day, the diſcharge was very large, ſo as to pour out above two ſpoonfuls of a milky pus, beſides what the dreſſings contained, which continued to the twelfth day; when I turned the naked flap againſt the bare ſtump, and the fourteenth day the union was complete. In the ſecond, the ſuppuration was more moderate, and the union was not complete in four days. The third patient had the intire limb and ſide paralytic: the ſtump never digeſted cleverly: the flap and ſtump were attempted to be united the twelfth day; and yet a complete coalition was not affected till the twenty-eighth; notwithſtanding the uſe of warming ſtupes, and poultices, and ſome doſes of calomel, to prevent a reabſorption of the pus. But the firm union of this flap, ſilenced every objection, that could poſſibly be made to this operation.

XCIII. About the twelfth day then, that is, when inflammation is intirely paſſed, and ſuppuration effectually eſtabliſhed, the bare flap may be turned up againſt the naked ſtump, and ſo be ſe-

cured by plaiſter, compreſſion, and bandage. Inſtead of the bandage already deſcribed, I have, on this occaſion, uſed the following, which I have not ſeen any reaſon ſince to alter. It is compoſed of a ſtrip of ſtrong cloath, to go round the knee; and to the centre of this, is fixed another, which croſſing, from under the ham, the ſtump is ſecured to the circular, above the knee, by means of four or five pieces of tape, attached to this laſt. The ſore ſhould not be opened for, at leaſt, two days after this; and the dreſſings taken off with great caution. I often bathed this part, very hot; and though the flap ſhould, in part, ſeparate, yet muſt it again and again be returned, until the parts firmly unite. The little ſore, which the flap does not cover, ſhould be dreſſed with lint and brandy. Soon after the union of the flap and ſtump, I have ſeen the former, ſometimes, inflame; but a relaxing ſtupe, and a poultice of flummery, ſoon removes this. But I never met with any inſtance of an abſceſs's forming in any part of the flap. At every dreſſing of the remaining little ſore, of the fleſh, the ſtump may be bathed in

bran

bran and water hot, which will greatly accelerate healing. Though after fifteen or ſixteen days the cure may be finiſhed, by any common nurſe-tender, yet do the parts remain tender for ſome days after. I was for a time at a loſs to account for this, till by the diſſection of one of my patients, who died in many months after this operation, of a malignant ſmall-pox, I found it was occaſioned by the extremities of the bones not being completely healed; ſo that, what I then thought a diſadvantage to this operation, appears now to be one of its greateſt excellencies: namely, that the bones ſhould be fairly covered, by a firm perioſteum, which at the ſame time accounted for this phænomenon.

CHAP. XVIII.

Of the Methods of performing the New Operation in the Thigh, Arm, and Fore Arm.

PRESENTED

With great RESPECT and ESTEEM,

TO

EDWARD VILLIERS, *Esq;*

Of KILPEACON,

And Representative in Parliament for the Borough of KILMALLOC.

XCIV. THE great point in view, in the different attempts to improve amputation, was, to secure flesh, and skin, sufficient to cover the extremities of the bones. The great projection of these last, particularly in amputations of the thigh; and the length of time the bone took to cicatrise; ever after extremely tender, and apt, upon every occasion, to become sore and raw, afforded a very melancholy prospect to the patient! Verduin's amputation, though it was

was attended with no ſucceſs in the leg, yet a variety of improvements have been propoſed, to make it ſucceſsful in the thigh. In 1739, Meſſrs Ravaton and Vermale, gave the detail of their different methods of performing the flap operation in the thigh, which M. Le Dran, in his Obſervations of Surgery, has preſerved. M. La Faye has propoſed another method of performing this operation on the thigh, which is to be met with in the Memoirs of the Academy. But all theſe different manners of operating, are extremely cruel, and look much better on paper, than human fleſh. Beſides, they knew not the neceſſity of making the flaps, and ſtump, diſtinct ſores. Without then detaining our readers with tedious deſcriptions, of what we muſt afterwards condemn, we ſhall deſcribe the moſt eligible, the moſt expeditious, and, we think, the leaſt exceptionable method of performing this operation.

XCV. To attempt this operation, by preſerving a flap of fleſh, in the poſterior and inferior part of the thigh, muſt leave ſo large a fleſh wound, and ſo great a quantity of muſcular fleſh bare, as to require

quire a very great length of time, to bring on a firm union of the divided parts: beſides, the fever, and great diſcharge from ſo large a ſurface, may alone well endanger the patient's life. For preciſely the ſame reaſons, we reject the other methods. After a variety of trials, I concluded, that a flap of fleſh and ſkin, preſerved in the anterior part of the thigh, muſt anſwer our moſt ſanguine expectations. For the quantity of fleſh here, is not much: the ſkin, corpus adipoſum and rectus muſcle, being only intereſted in the inciſion: of conſequence, the wound not conſiderable, and the flap not required very large. A patient dying in our hoſpital, I, on the body, attempted to determine the quantity of flap, neceſſary to be preſerved, in this manner. The circumference of the thigh, at four inches, from the inferior part of the rotula, meaſured eighteen inches. Here I drew up the fleſh, and bound it by a ſmall band. I then began a flap inciſion on the rotula, which I brought up to the circular band, and here ſawed through the bone, having firſt cut through all the intervening fleſh. The preſerved flap, meaſured three

inches

inches externally; and two and an half, from the circular inciſion of the fleſh, to its internal extremity. The diameter of the femur, in its longeſt axis, or nearly from ſide to ſide, was exactly an inch and one tenth; and yet this flap, beſides completely covering the bone, extended an half inch beyond it!

XCVI. By this plain and ſimple experiment, it appears, that the flap operation, in the thigh, by making your inciſion in its anterior part, becomes leſs complex, leſs painful, and even more expeditious in its cure, than the ſame operation in the leg. And yet how embarraſſing and tedious the cure, after this operation, in the common way! After determining on the preciſe place, on which the limb is to be taken off, care muſt be taken to have the blood-veſſels maſtered in the operation, either by Petit's, or the common tourniquet, as in the uſual manner: then let the fleſh and ſkin be tightly drawn up, from the knee, and ſo ſecured above the place of election, by a circular tape, or band. Mr. Gooch, a modern writer, propoſes a kind of thick circular cuſhion, to ſerve inſtead of this band, to direct the knife exactly

exactly in the circular tour. In my opinion, a thick tape will answer this purpose every bit as well, as this operation is mostly, exactly even; and that the cushion rather hides the direction of the knife from the eye. With a straight knife, such as has been described in taking off the leg, commence your flap incision, at about three inches, more anteriorly, than where the bone is to be sawed through, supposing an adult, and so in proportion to the age, and size of the limb. Let this incision be continued in an oblique direction, till you reach the bone, at the circular tape: then, with the same, or a common amputating knife, make your circular sweep, commencing from the side of the flap, and directly to the bone; observing here, as in the leg, to place yourself outside the body, in taking off the right thigh; and between the legs, in removing the left. But then, there is no necessity here, as in the leg, of change of place, in sawing the bone; because, as it is but one, wherever you place yourself to cut off the soft parts, there you may stay to finish the operation.

XCVII. M.

XCVII. M. Louis is of opinion, that to prevent the protruſion of the bone, in amputated thighs, the complete ſection of the ſoft parts, ſhould be performed at once; and before the bone is ſawed thro', the tape that ſecures the fleſh, at the place of exciſion, ſhould be unbound, to give the divided muſcles a greater power of retraction. Agreeable to ſuch juſt reaſoning, I think, that as ſoon as the circular inciſion is completed, the tape ſhould be removed, and the ſplit cloath croſs the divided parts, in order to draw up the ſkin and muſcles, the ſingle tail, covering the flap; and as ſoon as the perioſteum is ſeparated, *&c.* let the bone be ſawed. The femoral artery ſhould be taken up with a large convex needle, well threaded, the threads flat and waxed; and in doing this operation, it is not neceſſary, to include with the artery, a large parcel of muſcular fleſh. In fact, a ſmall portion with the cellular ſubſtance of the adjoining muſcles, will form for it a ſoft cuſhion; and the ſwelling of them, will ſufficiently compreſs the artery, as well as ſecure it from any abraſion of the ligature. But in making this ligature, the ſurgeon muſt

be very careful to pierce the parts, at leaſt, a quarter of an inch above the orifice of this veſſel: by not making this ligature ſufficiently profound, the veſſel ſlips from the nooſe, and you are obliged to make a ſecond, with greater pain to the patient. Let the threads be cut ſhort; and beſides this ligature, let ſome agaric, or lycoperdon, be applied; and any other conſiderable branches, of veſſels, may be taken up, or ſtopt, by the above funguſes. Let the ſurface of the ſore be covered with looſe, unformed lint, ſtrewed with flour, and the flap laid over this dreſſing, covered by a double T plaiſter; an handful of lint outſide this, gently preſſed againſt the flap, by an hog's bladder, moiſtened and notched, at its orifice; and the whole covered by a croſs of Malta compreſs. Let ſoft lint, tow, or a linen compreſs, cover the direction of the artery; and ſecure all theſe dreſſings on, by the following band.

XCVIII. Let this band be about three inches broad, and twelve yards long, rolled up in two even heads. Apply a large handful of looſe lint, or ſoft tow, over the femoral artery, near the groin; and after

after making a couple of circulars about this part, moderately tight, ſo as to break, in ſome meaſure, the force of the circulating fluid, let the bands croſs round the body. Fix a piece of ſtrong tape, about an inch, or more, broad, and a yard long, along the inſide of the amputated thigh, one end of which is to be ſecured to the band that went round the body, and the other to hang looſe over the ſtump: let a ſimilar piece of tape be in like manner fixed to the outſide of the thigh. Then, with one of the heads of your bandage, make three or four circulars, round the thigh, over theſe tapes, gently deſcending, and with the other head, croſs directly, over the anterior part of the thigh, and ſtump, and aſcend poſteriorly: a couple of circulars of the other head, gently aſcending, will ſecure it ſmooth and firm. Deſcend again over the inſide of the thigh, croſs the ſtump, and mount with your firſt band, outſide the thigh; and here another circular or two, makes this ſecond turn firm. Between the anterior and lateral turns of the band, you muſt bring down your roller, croſs the ſtump, and aſcend in the oppoſite direction; and here

again, a couple of circulars of the other roller, will make all firm: between the poſterior and lateral parts of the band, you muſt make a fourth turn, over the ſtump, and ſecure it, by another circular; and finiſh both heads, by circulars, or ſpiral turns, round the ſtump; or, if too long, they may be cut off. Though the ſtump be now apparently well bound, yet, by reaſon of the form of the thigh, the bands may be apt to looſen, or even drop off: to prevent this, let the tapes already mentioned, be turned up at their looſe extremities; the inſide one, to croſs over the inſide of the thigh, and, as it aſcends, to be here and there ſecured, by pins, to the circulars, and to part of the band that went round the body; and in like manner, the outſide tape. By this means, the circular turns, which only could looſen, will be ſmoothly retained in their different places, and the whole bandaging, convenient, firm, and even. The excellent and judicious remarks of profeſſor Monroe, on the diſadvantages of too ſtraight a bandage, on croſſing the ſtump, can be here of no force: he demonſtrated, that this force lay on the bare bones:

bones: here it is manifeſt, that the flap, and dreſſings, only, ſuſtain it. So that what was rather prejudicial, than uſeful, in the common operation, becomes here manifeſtly neceſſary. I am, nevertheleſs, clear, that the bandaging had beſt be but moderately tight, as the ſwelling of the ſtump, will ſoon make them ſufficiently diſtended.

XCIX. In winter, the ſtump ſhould not be opened before the fifth, or even ſixth day; nor in ſummer, ſooner than the fourth: the bone ſhould be dreſſed with dry lint, or lint wet in brandy; and the ſoft parts, with the common digeſtive; taking care, to remove no more of the old dreſſings, than what are looſe. When ſuppuration is well eſtabliſhed, the ſtump and flap, may be dreſſed with dry lint, as the ſoft digeſtives, at this time, are apt to encourage exuberant, or proud fleſh --- If, nevertheleſs, ſuch ſhould riſe on the flap, it may be, now and then, ſprinkled with red præcipitate; but the ſurgeon need *never* be uneaſy, at attempting an union of the flap and ſtump, at ſuch time; as I have done it, without the leaſt inconvenience to the patient. About the twelfth

or

or thirteenth day, and not ſooner, ſhould the flap and ſtump be brought into perfect union: before this, they are to be treated as diſtinct ſores; and preſerved in ſuch ſituation, by a bandage ſomething like what has been recommended for the leg. But whereas that was ſecured above the knee; to make this a fix'd point, the ſtraps muſt go round the body, and the body of the band lie on the anterior part of the ſtump, in order gently to bring the flap and ſtump into an exact union. This firſt dreſſing is not to be opened for three days; and every other rule recommended in the leg, is here exactly to be followed. If, in the ſuppurative ſtate, the ſore ſhould have an unuſual degree of pain and ſenſibility, the parts may be often bathed in milk and water; the ſick let blood, and even opium alone, or mix'd with digeſtives, may be ſucceſsfully applied to the parts.

To

To perform the New Operation in the Arm.

C. In amputating the thigh, we have, for very obvious reaſons, choſe to take the flap from its anterior part, as being a leſs conſiderable wound, having leſs of ſubſtance, and, of courſe, ſooner covering the bone, the principal object of all. For preciſely the ſame reaſons, in taking off the arm, the flap of fleſh ſhould be taken from its poſterior part, as being leſs fleſhy, and nearer the bone: here a flap of fleſh, from two and half, to three inches, will be certainly ſufficient to cover the bone. The bandaging here, muſt be pretty near the ſame, as in the thigh; though, as the arm is pretty near cylindrical, ſome may think it unneceſſary to croſs the band round the body, as it might be apt to heat and oppreſs the patient. But if this ſhould be thought proper to be diſpenced with, I am clear, that a flat tape ſhould, from the neck, hang down each ſide of the arm, the bandaging to be performed over it, and the two extremities of it, turned back, pinned to the circulars, and ſo firmly ſecured to the neck-band. The union ſhould be attempted about the eleventh day.

How to perform it in the Fore Arm.

CI. To take off the fore arm, in our method, we muſt look for the flap, in its external part, as having leſs to cut thro'; but above all, as by this means you avoid bringing in that monſtrous groupe of tendons, which cover the inſide of the fore arm: here, from an inch and an half, to two inches, will be, undoubtedly, ſufficient to cover the bones; but then, in the inciſion, you muſt comprehend the full breadth of the fleſh and ſkin, on the back of the fore arm-----The dreſſings and bandaging are moſt eaſily comprehended, from what has been already ſaid; and about the tenth day, you may attempt an union of parts.

CHAP.

CHAP. XIX.

Of the ſuperior Advantages of the New Operation to that now uſed.

As a particular Mark of ESTEEM,

FOR HIS

long, ſteady, and inflexible ATTENTION

To the INTEREST of the

LIMERIC INFIRMARY,

INSCRIBED TO THE

Rev. DEANE HOARE, M. A.

AND

TREASURER *to ſaid* CHARITY.

CII. NOTWITHSTANDING the repeated endeavors of the firſt ſurgeons of Europe, for near a century, to perfection the flap operation, at length happily eſtabliſhed; many ſtrong objections have been made from time to time to its general eſtabliſhment, which we ſhall here impartially conſider.

Obj. 1. "There are but few caſes, where this operation is admiſſible in; as it requires ſo conſiderable a quantity of ſound fleſh, below the part to be amputated, that the diſorder muſt be confined to the foot or ankle."

CIII. In the methods heretofore deſcribed, a great part (indeed the intire) of the leg, was required to be ſound; but amongſt many irregularities attending this method, this was the moſt conſiderable. For they never determined the preciſe quantity of flap to be preſerved: their directions were, that if, after the operation, more fleſh had been reſerved, than was neceſſary to cover the ſtump, it was to be pared off; as if human fleſh was to be cut and hacked, ad libitum! whereas, in our method, the part, neceſſary to be preſerved, is preciſely determined; and, in general, in amputations of the leg, as much ſound fleſh as this, is left expoſed, even in the common method of amputating. For the general rule is, to amputate, at leaſt, two inches above the mortified part; and, indeed, it is much oftener three, than two. But let us, for argument ſake, ſuppoſe that a mortified

leg,

leg, which neceſſarily requires amputation, is ſound at but two inches from the uſual place of amputation. Here it may be obſerved, that to perform this operation in my way, inſtead of his leg, the patient muſt be amputated in the thigh; as the quantity of ſound fleſh, required by me, is here wanting. But to this I anſwer, that a leg, even under theſe predicaments, may ſtill be taken off, in the flap way. I would not heſitate a moment, to make part of the oblique ſection an inch, or an inch and an half (which is the utmoſt wanting) into the leſed parts. Since as this is a diſtinct ſore, diſcutient and active ſtupes may, after the firſt dreſſing, be applied to this part, to reſtore a circulation. But let us grant, that this piece of flap is irrecoverable; and that the *corpus adipoſum* will here fairly melt away, ſtill from a remarkable caſe, in Le Dran's Obſervations, Vol. 1. page 88, we find the ſkin, though apparently black and mortified, is ſtill capable of recovering itſelf, and uniting to, and firmly covering ſores. But it may again be aſſerted, that the attempt of preſerving ſome of the leſed parts, in this operation, may be attended with dangerous

conſequences to the ſick, by reabſorbing part of this malignant matter. It has, however, been ſo clearly proved, through the courſe of this work, that if the bounds of the mortification be circumſcribed, that is to ſay, that from being univerſal it becomes local, or fixt to a certain part; that all intercourſe abſolutely ceaſes between the ſound and unſound parts at this time, and that no danger can ariſe to the patient, by delaying the operation; but the greateſt, by a too haſty uſe of the knife. That the ſkin can be recovered, tho' ſeemingly in a ſtate of diſſolution----And by the bye we know the ſame thing often happens to more noble parts (as La Motte amputated an arm, in the mortified parts, ſucceſsfully, Traite Complete de Chirurgie, Tom. 3. Obſ. 321.) we ſhall be convinced, that it is not only ſafe, but ſound practice, in ſimilar caſes, to cut into the mortified parts; and that in all caſes, that neceſſarily require amputation, *the flap method may and ſhould ever be preferred to the common one.*

Obj. 2. " Amongſt the many advantages, expected from Verduin's method of amputation, that of the ligature of the blood-veſſels becoming unneceſſary, was not

not the leaſt; yet experience has proved, and it is now a material objection to it, that the hœmorrhagy alone has often proved fatal to the patient."

CIV. As it became a received opinion of moſt ſurgeons, that wounds of this kind, brought into contact, immediately united by inoſculation, or without ſuppuration; ſo taking up the artery was judged unneceſſary, as oppoſing this union----No wonder then, if fatal hœmorrhagies frequently intervened, and brought on death! But as we have fully proved the falſity of this aſſertion, by ſhewing, that inflammation and ſuppuration are abſolutely neceſſary to bring on a reunion of divided parts, it follows, that taking up the veſſels are highly proper----Nay ſo little right have we to dread bleeding, in our new method, that I am quite clear, that we are much more expoſed to it, in the common one. For beſides the common dreſſings of ſoft lint to the ſtump, the flap is alſo dreſſed the ſame way; and the flap returned, and preſſed againſt the ſtump, becomes the ſofteſt, and firmeſt preſſure, againſt the blood-veſſels; and of courſe makes the taking

taking up of the muſcular arteries quite uſeleſs.

Obj. 3. " The flap may become united to the ſtump, before the ſtitches are ready to fall off, which muſt cauſe troubleſome abſceſſes, or endanger the ſeparation of the coaleſced parts."

CV. As I had maturely conſidered every poſſible obſtacle, that might oppoſe, or render the ſucceſs of the *New Operation* in the leaſt doubtful; this appeared to me a very formidable one: however, experience, the moſt unerring guide, has fully cleared up this affair. For Kenelly, my firſt patient, had a ſtitch taken out the 15th, and another the 17th, or the ſecond and fourth day, from the union, without the leaſt affecting this union. In fact, I took it for granted, that the ligatures had been all removed, before the flap was turned up; but yet, on the above days, ſomething white, or like thick pus, preſented itſelf to the orofice of the ſore, which, on removing with great eaſe, proved to be the ligatures of two veſſels, that had dropped out, and which nature, without the leaſt pain or trouble, puſhed forward. By this it appears, that the ligature

ture of the veſſels can, in no ſhape, obſtruct the cure, after this operation; but if, inſtead of the ligature (ſuppoſe in the caſe of the leg or fore-arm, for inſtance) we uſe the agaric, or lycoperdon; it is demonſtrable, it may more ſafely be depended on, than after the uſual manner of operating. Nay, I have very little doubt, but ſoft lint and flour may be ſufficient to ſtop hœmorrhagies in this way, as the dreſſed flap, and the nature of the bandages and dreſſings concur to give that ſoft firm preſſure, ſo neceſſary to oppoſe the paſſage of the blood in divided arteries.

Obj. 4. "More blood is certainly loſt in the flap operation, than by amputating in the common manner."

CVI. Tho', undoubtedly, more blood appears to be loſt, in our manner of operating, than in the general method of practice; yet a little reflection will quickly ſhew us, that this is rather an advantage to the operation. For we can only compreſs the poplites artery: all the blood beyond that is moſtly loſt, even in the common way. The addition of the flap, it is true, preſerves a greater length of theſe veſſels, and of courſe makes the

the appearance of a larger hœmorrhagy; but it is, nevertheleſs, demonſtrable, that the patient ſuffers no greater loſs of blood, in the mean, by this method, than by the common operation: the difference conſiſting only in this, that, in the ſecond method, the blood remains in the mutilated part, which in the other falls on the floor. But ſo far is this from being prejudicial to, or weakening the patient, that it becomes manifeſtly uſeful by giving to the blood a greater freedom of circulation, and making the inflammatory ſtate of the flap and ſtump more gradual and leſs painful: juſt as we daily obſerve of common wounds, the freer they bleed on being received, the kinder and ſpeedier they heal.

CVII. Having thus impartially examined all the ſuppoſed defects of this operation, and fully anſwered all poſſible objections to it; let us now, in the ſame manner, demonſtrate its many ſuperior advantages to the common one, in order to its effectual eſtabliſhment. In the common method, beſides the preſent danger, incident to all capital operations, many others are to be dreaded. Firſt, the large ſurface to heal muſt make a tedious ſore; and this,

this, tho' ever ſo gently dreſſed, muſt create pain, and keep up the fever, which in vitiated habits may be attended with fatal conſequences: at beſt nature muſt be weakened by the ſuppuration. 2dly, the ſore long expoſed often affects the bone, and ſo makes exfoliation neceſſary; and the tedioufneſs of this proceſs what ſurgeon does not know? 3dly, The extremity of the bone is long ſkinning over, and this is ſo thin and fine, that the leaſt cold pierces it, eſpecially froſty weather, which often makes it break out afreſh. 4thly, The bone often projects conſiderably beyond the fleſh, particularly in amputations of the thigh, whereby a ſecond and third ſection have been found neceſſary: add to this, that in all theſe caſes, a too abundant ſuppuration is to be dreaded; and this the more in hoſpitals, or cloſe places, where a number of ſick are confined to a ſmall ſpace.

CVIII. On the contrary, in this new operation, the ſore becomes ſuperficial in about ten or twelve days, from which little pain can be feared; and the ends of the bones are ſo well covered, by a cuſhion of fleſh, that no exfoliation can be dreaded,

much leſs ſubſequent pains in froſty weather. In the common method, a diſorder even of the foot, makes amputation near the knee neceſſary, becauſe here the wooden leg reſts; but in this, you may cut much lower down, as the extremity of the ſtump may reſt in the hollow of an artificial leg, which the cuſhion of fleſh enables it to do; and the remains of the limb will have the power of bending and extending, as freely as ever. But nothing can prove ſo clearly the advantages of this method, as the ſingle reflection, that the very extremity of the bone is fairly covered with a firm perioſteum! As this is a circumſtance of the greateſt conſequence to the public, I ſhall tranſcribe the atteſted caſe, which has been two years ago printed, and the original ſigned by three phyſicians, and two ſurgeons.

Obſ. 59. Allice Blachall, whoſe caſe is deſcribed, Obſ. 51, in ſome months after her cure, was ſeized with a confluent ſmall-pox, and again admitted into our hoſpital, where ſhe died the 8th day. Curious to know how the flap and ſtump were united, I embraced this extremely diſagreeable opportunity, doubting if ever

I ſhould

I ſhould have a ſecond; and, in the preſence of a good many gentlemen, went through a minute enquiry. On handling the ſtump, I found the flap moved about with eaſe; but on a cloſer inſpection, the parts moſt contiguous to the ſtump, adhered firmly to it. I made an inciſion about an inch and an half above the ſtump, and cut the parts carefully away; but the inſide of the flap adhered very ſtrongly to the ſurface of the bones, and principally at their edges, where the ſeparation was with difficulty performed.

The inſide of the flap was remarkably ſmooth, and in it were formed two cavities, for the two bones to lodge in; which cavities, tho very ſmooth, had a much greater degree of ſolidity and firmneſs than the reſt of this part, The extremities of both bones were very ſmooth and even, and fairly covered with a perioſteum, which I ſeparated, and which was *thicker than what generally covers the ſurface of bones.*

CIX. And to remove every remains of doubt, and to point out to ſurgeons in the cleareſt manner, how much it is the intereſt---at leaſt of the ſick, to ſubmit to this new manner of amputation, I ſhall

juſt tranſcribe the examination of two different patients, which I made at my houſe, in the preſence of ſome curious gentlemen.

Obſ. 60. Quinlon, whoſe caſe is recited in Obſ. 52, I examined in January 1762, as well as Kennelly, the firſt man, who ſubmitted to the flap operation. The circumference of Quinlon's ſtump meaſured 12½ inches. Beſides the ſkin preſerved in the operation, the cicatrice meaſured, in its longeſt axis, or from ſide to ſide, 3$\frac{7}{10}$ inches. Its diameter, or from the fore to the back of the leg, was 2 inches; and a ſmall ſcab covered the centre of the bone. He had, in cold weather, a violent pain in the bone, inſomuch that he could ſcarce feel heat in the ſtump, at this time, tho' over a fire, and a drop often came from the bone. On the contrary, Kennelly, tho' paſt fifty, and of a puny conſtitution, never felt any pain in the bone, from the firſt day. The union of the flap made the ſore ſuperficial; ſo that the only ſign of a cicatrice was in the anterior and lateral parts of the tibia. The whole length of this ſore was four inches and an half; but this ſo narrow and ſuperficial, as not to be, in ſome places, two lines, nor in its broad-

broadeſt, did it exceed half an inch; and as this was merely fleſh, without the interpoſition of bone, the cure was ſpeedily effected. Such was the event of this examination; and ſuch the difference between two men, the one a ſtrong healthy man of 35, the other a puny ſickly man, and advanced in years: the firſt examined 16 months from the operation, and the other ſix weeks!

Having thus *endeavoured*, with great preciſion, to claſs under proper heads, the different ſpecies of gangrene: to diſtinguiſh the curable from the irremediable diſorders of this claſs: exactly to aſcertain the preciſe time in which amputation ſhould be undertaken; and in fine preſented to the public a new and more ſucceſsful method of performing this operation than any ever yet imagined; I ſhall conclude this work in the words of Horace.

Libera per vacuum poſui veſtigia princeps:
Non aliena meo preſſi pede.

F I N I S.

A N

APPENDIX,

CONTAINING

Propoſals for the ADVANCEMENT of SURGERY in IRELAND;

With a retroſpective View of the ANTIENT STATE of PHYSIC amongſt us.

PRESENTED

With Great DEFERENCE and high ESTEEM to

LUCIUS O'BRIEN, Eſq;

REPRESENTATIVE in PARLIAMENT for the BOROUGH of ENNIS.

THOUGH it be univerſally admitted, that the profeſſion of ſurgery is of the greateſt utility to the ſtate in time of war, and to the public at all times; and as ſcarce a man from the prince to the peaſant, but muſt fall under the hands of ſurgery, at ſome period or other of his life, it muſt neceſſarily

ly follow, that the inſpection into a profeſſion, on the abilities of the members of which the lives of thouſands daily depend, is an object of *univerſal* concern.

It cannot, nevertheleſs, but afford matter of great concern to a contemplative mind, to obſerve, upon how ſtrange a footing, this moſt uſeful profeſſion ſtands in this kingdom, compared to that of other ſtates. In France the advancement of ſurgery has been a particular object of government, for above a century paſt, beſides the different profeſſorſhips founded, and penſions beſtowed on particular men of merit; perſons pretending to eminence in any particular branch of the healing art were ſure of public countenance. From this attention of the ſtate, ſurgery began to flouriſh in a remarkable degree there; and M. Voltaire places the advancement of our profeſſion, as one of the memorable tranſactions of Lewis XIV. This object, ſo far from being loſt ſight of, has been carried to the higheſt length, in the preſent reign. Beſides the foundation of a Royal Academy of Surgery, under the King's immediate protection, the great advantages of which are univerſally acknowledged; not only are penſions beſtowed,

ſtowed, but patents of nobility are frequently conferred on ſurgeons of eminence, and every other motive expanded that can rouſe latent merit. And certainly with the ſoundeſt policy, and higheſt juſtice! For if the Roman republic decreed a civic crown, to the man who ſaved the life of even a ſingle ſoldier, how powerful ſhould not the incentives be, to ſtimulate men to excel in a profeſſion, ſo remarkably connected with the good of mankind? What an additional ſpirit do not the ſoldier and ſailor acquire, to perform their duty, when they know they have men of humanity and capacity to pour balm into their bleeding wounds?

But whilſt great care is taken, to cheriſh merit, and keep up a generous emulation amongſt the different members of this profeſſion, particular attention is paid, to prevent any one's intruding himſelf into it, without proper qualifications. To practiſe ſurgery in Paris, after going thro' a painful courſe of ſtudies, and being alſo Maſter of Arts in ſome univerſity, the candidate muſt paſs thro' a ſevere courſe of examinations at St. Coſmes, before the firſt men of the profeſſion. Beſides proving himſelf a good anatomiſt, well verſed

in the diſorders of ſurgery, and their cure, he muſt perform all the operations of ſurgery on a body. Then it is, and not before, that he gets a faculty, becomes a regiſtered ſurgeon, and is intitled to all the privileges and emoluments of it. From this body the ſtate is ſupplied with able profeſſors for the navy and army, and the kingdom in general well ſerved. In Germany they are alſo regiſtered, and in Bohemia certain ſtipends are allowed them, for their attendance on the poor, in their different diſtricts.

Tho' great attention has always been paid to the preſervation of property amongſt us, inſomuch that a man muſt be a cynic indeed, who complains of the fewneſs of our laws, on this head: tho' moſt kind of frauds and villanies have adequate puniſhments annexed to them; and that thro' the interpoſition of that truly patriotic body, the *Dublin Society*, arts and manufactures flouriſh; yet we cannot but with ſingular concern reflect, that for a very long period no laws have paſſed, relative to that great article *Health*, if we except a regulation made about thirty years ago, to the diſpencing medicines in Dublin; and which two ſeſſions paſt became general to

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the kingdom.----On the contrary, it would ſeem, as if the moſt ignorant impoſtor had as much right to trade in human fleſh, as the firſt ſurgeon; for (if my informations are right) a common empyric can enforce payment for attendance in ſurgery, even tho' he ſhould be very far from perfecting the cure! In fact, as we have no laws made, no criterion fixed on, to determine what the neceſſary qualifications of a ſurgeon are, or of a man, who may with impunity make uſe of fire and ſword againſt his Majeſty's ſubjects, the law ſuppoſes every man who aſſumes the character, properly qualified.

However ſuch has not always been the caſe in this kingdom; for we find our GREAT ANCESTORS very early in their attention to the health of the ſubject. Ireland was the only country in Europe, in which the promoting the fine arts ſeemed interwoven with the texture of the ſtate. peaceable and undiſturbed poſſeſſors of a noble country, for very many centuries, nothing ſeemed to eſcape their obſervations, in which the general good of the ſubject was intereſted! Their phyſical regulations alone would do honor to the moſt

polite nation at this day in Europe.* Coeval with the foundation of the Iriſh monarchy were the learned profeſſions made hereditary in certain families, in the different parts of the kingdom: their perſons were deemed ſacred: their poſſeſſions inviolate! They were exempt from all ſorts of impoſts; and certain portions of land were every where allotted them, for an honorable maintenance. We find Amergin, a ſon of Mileſius, appointed by his brothers Chief Judge of Ireland, on their very landing, as if arts and arms went hand in hand with them! The learned O'Flagherty has preſerved ſome ſketch of his works; and O'Cormoc has celebrated him, in an ancient Iriſh poem on our principal writers, which Mr. O'Flagherty has thus rendered into Latin verſe:

Primus Amerginus genu-candidus, author Jernæ;
Hiſtoricus, judex lege, poeta, ſophus.

Succeeding monarchs enlarged theſe privileges. In the reign of Tighermas, † A. M. 2816, men of learning were allowed

* Conſult Uſher, Keating, Ward, Lynch, or Gratianus Lucius, O'Flagherty, Welſh, Ware, Harris, O'Connor's Diſſertations, M'Geoghegan, &c.

† Keating *forus feaſa ar Eirion, cead leabher*, 7c.

ed the ſame number of colors in their cloaths, with princes of the blood. A. M. 3075 Aildergoidh * directed phyſicians to wear gold rings; and in a very few years after, the great Ollamh Fodlha reformed, revived, and confined for ever the profeſſion of phyſic to certain families, through the kingdom; and that no interterruption ſhould be given to the learned in their different ſtudies, by a perpetual and immutable law, in all inteſtine wars, irruptions, &c. their perſons and poſſeſſions were every where undiſturbed; and as the learned Dr. Keating, and all our annaliſts agree, thus continued, even for a long time after the Engliſh invaſion. Under ſuch flouriſhing circumſtances then, we are not to wonder, if they were unrivalled in arts, as well as invincible in arms! That the learning of our antient Druids, like the language, ſpread over Britain and France; and that after their converſion to Chriſtianity, their piety, hoſpitality and learning ſhould be the admiration and wonder of all Europe!----We, however, find this attention to the health of the ſubject obſerved in the moſt poliſhed ſtates of antiquity, though not in ſo eminent a de-

* Ibid.

a degree, as amongſt us. For inſtance, amongſt the Ægyptians and Greeks, the profeſſion of phyſic was hereditary in certain families, and public ſtipends were allowed to them by the ſtate; and the great Hippocrates was himſelf the 18th deſcendant from Æſculapius.----But to return to the hereditary phyſicians of Ireland: of theſe ſome aſſumed the ſirname from their profeſſion, as the Macleas, or ſon of the phyſician: others from their great ſucceſs, as the O'Hickies, or healers, from Ike a balſam. The O'Canavans and O'Callinans, I find, were the phyſicians of the county of Gallway :* the Nealans and Hickies to the renowned Dalgaſs, or militia of Thomond, as the Mac Clanchy's were the judges, and the Bruodins the hiſtorians.* The O'Fergus's were profeſſors of eminence in the county of Mayo; the O'Duigenans in Breffny, now part of the county of Leitrim; the O'Shiels in Tirconnell, the O'Dunleavies and O'Caſſidy's in Fermanagh. A branch of the O'Callinan's ſettled in the county of Corke; and were in ſuch repute, that to this day, to deſcribe the ſituation of an incurable, it

* O'Flagherty Ogygia, p. 360.

* Bruodinus propugnaculum, lib. 5. cap. 4.

it is a common expreſſion, " *Ni leighis fiodh* " *O Callenan fein e*---Even O'Callinan would " not cure him." By ſuch wiſe inſtitutions, it was, that our Anceſtors attended to the health of the ſubject. The ſick and wounded every where knew to whom they were to apply for relief: no empirics or impoſtors were ſuffered to cheat them of life and wealth. But even here, to guard as much, as human reaſon could poſſibly foreſee, againſt monopoly, tho' the profeſſions of phyſic and ſurgery were hereditary in families, yet they never deſcended in a regular ſucceſſion: the moſt diſtinguiſhed in the tribe were the candidates, and of theſe the moſt eminent was called to the ſucceſſion. By this wholeſome law, a generous emulation conſtantly ſubſiſted between the learned profeſſions. That ſurgery in particular flouriſhed in a moſt remarkale manner, amongſt ſo learned and warlike a nation, cannot be doubted; and a moſt ſtriking proof of this, our antient annals furniſh us with even prior to the Chriſtian æra. The caſe has been preſerved in our antient annals, and from them handed to us, by the learned Dr. Keating, in his hiſtory. " Connor, King of Ulſter, about the year of the world

3950, had his ſkull violently fractured by a famous hero of Connaught. When his life was quite deſpaired of, his firſt ſurgeon by name Feighnin Feathig, propoſed an operation, as the only chance left for his recovery, provided his nobles would conſent, and protect him from the conſequences. They agree: the king recovers; but Feighnin charges him, as he loves his life, to avoid all intemperance, and violent paſſion to which he was addicted, for fear of inflamming the brain, and burſting it from its encloſure, 'till the parts became firm." Trepannation or its conſequences could ſcarce be better pointed out by the ſurgeon, than they are here deſcribed by the hiſtorian! This prince in a conſiderable time after, inconſiderately falling into a moſt furious paſſion, the cicatrice burſt open, the brain was in part diſcharged, and he died ſoon after. Thus we ſee an operation, at this day allowed to be the niceſt in ſurgery, was familiar to our ſurgeons 1800 years ago, when this profeſſion, even amongſt the Greeks, and in the Roman republic, then in its greateſt ſplendor, was in a very abject ſtate. And the very old, tho' well known adage, "*Ni "thogfidh leagha na lhfann e*---The phyſicians

" cians of the royal militia would not raiſe " him," proves what eſtimation our profeſſors were held in, in the moſt remote times; eſpecially when it is known, that this moſt formidable body, renowned for many ages, became totally ſuppreſt in the third century. Such intereſting anecdotes preſerved, do honor to the hiſtorian, as well as mark the different traces of knowledge: thus Mezeray records a ſucceſsful trial of extracting a ſtone in the kidney from a convict, in the reign of Francis I. So Voltaire notes the general improvement of ſurgery in the times of Louis XIV. An account, ſimilar to this, of Dr. Keating, is recorded in the Second Volume of the Edinburgh Eſſays.

That few of our antient writings in ſurgery or phyſic, ſhould be preſerved, is not ſurprizing: indeed upon reflection it will appear aſtoniſhing, if the Iriſh were not the moſt devoted nation in the world to their antiquity and learning, how it was poſſible to preſerve any annals at all! a cruel, relentleſs, and almoſt uninterrupt-Daniſh war of above 200 years, ſucceeded by an Engliſh one of 400; in which every monument of literature and antiquity, that could be come at, ſhared the

unhappy fate of their country; whilſt hirelings, *profaning the ſacred name of hiſtory*, have from time to time during this period, attempted to obtrude the moſt glaring, the moſt illiberal invectives, for hiſtorical truths, will fully anſwer the cavillings of critics on this head. Even our medical regulations, for which, amongſt other things, the Ægyptians and Greeks were ſo jnſtly revered, have only ſerved as new matter of triumph to theſe prejudiced writers: thus De Linda, "me-"dicos ibi, hæreditas non doctrina facit." The ſame may be obſerved in Stanhurſt, Campion, &c! nay the learned Cambden appears, in many places, too replete with this ſame ſpirit: thus on the preſent ſubject he obſerves, "Principes medicorum Hiberniæ ſunt Callinani, qui *inſtinctu* potius quam doctrina medici evadunt!" Thispartiality which reflects on the man and the hiſtorian, has given riſe to the following epigram:

Perluſtras Anglos oculis *cambdene* duobus;
Uno oculo Scotos: cœcus Hibernigenas.

In fact nothing can be more certain than phyſic amongſt other learned ſciences being carefully cultivated by our Anceſtors. All the proofs that our ſituation

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can afford, and that in ſuch circumſtances can be expected, loudly proclaim this fact. Firſt, we find clear and expreſſive technical terms for all the diſorders of phyſic and ſurgery in our language; many of which, moſt modern nations borrow from the Greek and Latin writers. I ſhall juſt give two inſtances which prove our knowledge of diſorders, as well as acquaintance with the antient Greeks----A cataract we call Dortaghe from Deor a drop, and Suil or Huil an eye. How much more ſignificant is this than the Hypochuma of the Greeks, and the Suffuſio or Cataracta of the Latins? A rupture Muim-ſhekine, from Muim a tumor, and Shekine the groin: who cannot here ſee the Bubonecele of the Greeks? 2dly, We find the knowledge of ſimples here perfectly underſtood; and this knowledge is in ſome degree preſerved by the common people to this day, by whom many cures are performed by ſimples; and from ſome of whom I have learned certain operations in ſimples, unnoticed by writers. 3dly, The early acquaintance of our Anceſtors with the moſt eminent Greek and Roman medical writers, prove, that intenſe ſtudy and obſervations, not *ſucceſſion* formed our phyſicians.

The earlieſt edition of Hippocrates that appeared in Europe, is a tranſlation from the Arabic, printed at Venice in 1493: that from the original tongue was not publiſhed for half a century after; and yet, beſides other curious works, I have by me (thanks to my learned and worthy friend and antiquarian Charles O'Connor, Eſq; of the county of Roſcommon) at this time, a tranſlation of Hippocrates into Iriſh, wrote at a much earlier period, than the Venetian Edition. It is wrote on thick vellum in Folio; and has the evident marks of a moſt remote antiquity. The text is in Latin in Iriſh capitals, elegantly penned: each aphoriſm being literally rendered into Iriſh, with copious explanatory notes in the ſame language; in which the medicines neceſſary to remove the different defects are minutely detailed. In ſome places, the beginning of the aphoriſm only is preſerved in the text; but then the intire is minutely tranſlated before the notes. I have compared the text with different tranſlations; and tho' they all agree in the mean, yet is it different in the ſtile from any. In ſome places are manifeſt greciſms: for inſtance, we find Pharmacia often ſubſtituted for Purgatio, &c.

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the ſucceſſion of the aphoriſms do not exactly follow as in other tranſlations; nor is the whole divided into books. On the whole, the appearance of the MS. the obſoleteneſs of the abbreviations, in many places with great difficulty made out; and the ſmall attention paid to literary diſquiſitions (at leaſt in this language) for ſome centuries paſt, make it demonſtrable, that this tranſlation had been made before, or very ſoon after the Engliſh invaſion. Eſpecially if we conſider that the preſent MS. how antique ſoever it appears, is evidently but a copy; for the elegance of the penning, and the text, in ſome places ungrammatical, in many ill ſpelt, prove this.

It was not 'till about the annihilation of the Grecian empire, that the Greek language became revived in Europe: the diſperſion of the Literati of Greece made their writings more familiar. It was to the Arabians we owed the earlieſt acquaintance with Galen and Hippocrates; and yet it very remarkable, that this language at all times has been known to our Literati. For inſtance; St. Cormoc, King and Archbiſhop of Munſter, in the 9th century, underſtood it well, as his writings teſtify.

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From this ſhort ſketch of our ancient phyſic (I hope no unacceptable preſent to the curious) it muſt appear to demonſtration, that all the ſciences have been cultivated amongſt us with the higheſt ſplendor, and particularly phyſic. And yet how different is this account from the character which Mr. * Hume in his hiſtory, is pleaſed to give of the Iriſh nation! This elegant and learned writer, forgetful of what he owes himſelf as a gentleman and ſcholar, and the public as an hiſtorian, is not aſhamed, with the greateſt coolneſs, and with a moſt *unbridled* licentiouſneſs, to repreſent the whole Iriſh nation, as abſorbed in ignorance and barbarity, and totally deſtitute of every human virtue! Had this been really the caſe, ſome regards to decency and politeneſs: to ſo many noble Engliſh families, whoſe veins are replete with Iriſh blood: to the preſent nobility and gentry of Ireland, antient as well as modern, all blended together as one people; and to a ſiſter nation ever renowned for bravery and hoſpitality----ſhould have prevailed upon him at leaſt to ſoften his tints, and throw into ſhades ſome parts of this unnatural repreſentation. But if this whole account

* See the life of Henry II. &c.

account be as remote from truth, as light is from darkneſs, what can the public think of the *candor* of this gentleman?

To ſee a groveling writer, or a man of midling parts, run into invective and miſrepreſentation, is not ſurprizing; but when we behold men of exalted genius's let prejudice and partiality preponderate philoſophy and juſtice; and the dignity of the hiſtorian ſink into the acrimony of the pamphleteer----When ſuch a man as Mr. Hume attempts, from the character he has gained as a writer, to ſtamp unmerited infamy upon a whole nation; one cannot help concluding, that the exploded doctrines of Dempſter, &c. are again reviving.

But from this tranſient animadverſion on a writer juſtifiable from his character *only*, to our ſubject. If, Salus populi, lex ſuprema, be an uncontroverted maxim of ſtate, in the political ſenſe of the word, ſure in its literal ſenſe, it muſt carry ſtill greater weight. Indeed the daily injuries committed by ignorant quacks call loudly for reformation. A ſlight ſore, a fixt pain, rheumatic, nay paraletic complaints, are cauſes ſufficient for theſe gentry, to ſalivate. But this is not the leaſt injury: the mercu-

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ry is poured on in ſuch profuſe quantities, as frequently to deſtroy---in general to impoveriſh the conſtitution, and make the ſick of little uſe after. Nay ſo violent are their common purges, that the prudence only of the apothecary, is what preſerves the patient. And what elſe can be expected, where wretches who can ſcarce write, ſeem to amuſe themſelves with the moſt draſtic drugs, with impunity? Nay, there are not wanting *inſtances* in a more exalted ſtate, where men of greater character than abilities have abſolutely deſtroyed the ſick, thro' the groſſeſt ignorance!

To prevent then ſuch fatal miſtakes for the future, and to preſerve the vigor of our commonalty, already greatly degenerated: the following propoſals for the advancement of our ſurgery, are ſubmitted to public conſideration.

I. That a decent and convenient edifice be erected in the capital, and three profeſſorſhips founded: one for anatomy, a ſecond for the diſorders of ſurgery and midwifry, and the third for the operations of ſurgery; and that each do give a courſe of lectures in ſucceſſion every Winter free to all people.

II. That

II. That an exact list be taken through the kingdom of all reputable surgeons, with their names and places of abode: that no other presume to practise surgery, much less perform capital operations; and that all young surgeons for the time to come be interdicted practice, 'till they shall procure a faculty of their abilities, signed by the above professors, or their successors.

III. In order to procure this, the candidate or candidates must by written notice apply for a public examination, and this to be published before the exhibition which should be from twelve to three o'clock. That this hold for three days: the first intirely for anatomy, the second for disorders of surgery, and if a candidate for midwifry, for this also; and the third to finish, with performing all the operations of surgery on a body, with their apparatus and bandaging. When a proper faculty, signed by the professors, is given to the candidate, to which if some little honor were annexed, it might add greater stimulus to the young students.

IV. That this course be attended with no kind of expence to the candidate; and that it be free to all Irishmen *only*, without

out diſtinction; genius being unconfined to principle or party, and ſuch narrow conſiderations being worthier a little republic of Raguſa, than the repreſentatives of a powerful kingdom. And that the number be by no means limited, becauſe the more ſurgeons of eminence, the better will the public be ſerved.

V. That a printed liſt be publiſhed annually of the regiſtered ſurgeons and men-midwives of the kingdom, with their places of abode, ſigned by the profeſſors; by which means the public will, *as heretofore*, know where to apply for certain relief.

——————*Fungar vice cotis, acutum*
reddere quæ ferrum valet, exſors ipſa ſecandi.
HOR.

THE END.

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ERRATA.

Page 9, l. 7, for quiet read quick; page 41, l. 19, after "eſcaped," add, in a word ſhe died, the fifth day from the operation; page 147, l. 16, for tranſeeded read tranſuded.